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RAILWAY AGE

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WEEK AT A GLANCE

TALGO: American Car & Foundry's long-awaited "Talgo" train, prototype of two to be built to Spanish patents for use in Spain, was formally unveiled on April 20. The demonstration unit, consisting of an A.C.F.-built Diesel locomotive, a baggage unit and a five-unit, 64-passenger articulated coach, is both described and illustrated in our opening feature article, on page 30, and further discussed in an editorial on page 28. The demonstration unit will be tested to determine the possible application of such a train to American passenger service.

ELECTRIC LOCOMOTIVES FOR FRANCE: An article starting on page 44 describes experimental electric locomotives to be tested on the French National Railways for operation on a 20-kv., 50-cycle, single-phase a.c. overhead contact system designed for economical electrification of secondary or light-traffic lines. The "guinea-pig" locomotives will also be expected to operate under 1,500 volts d.c., which is the French standard for electrified heavy-traffic main lines.

CUTTING COSTS ON THE S. & A.: Eight Baldwin-Westinghouse 1,500-hp. Diesel-electric road switching locomotives, purchased early in 1948, are producing substantial operating economies for the 145-mi. Savannah & Atlanta. What these economies amount to, and how they have been realized, is the subject of an illustrated feature article which starts on page 46.

C. T. C. RAILROAD: Progress achieved by the New York, Chicago & St. Louis in its extensive program of installing centralized traffic control on all single-track sections of its main lines between Buffalo and Chicago and St. Louis is detailed in an article which starts on page 36. The Nickel Plate's ultimate objective is train operation by signal indication on all single-track through routes.

OVERHEATED BEARINGS: This week's News columns include a detailed summary of Interstate Commerce Commission reports on three widely-separated accidents, all resulting from overheated traction-motor bearings on Diesel-electric locomotives. The reports point up the difficulty of detecting such conditions from road inspections of the "relatively inaccessible" bearings.

BOOMERANG? Operating employees of the New York, Ontario & Western went out on strike last Monday, because the company, harassed by almost constant deficits, has been unable to pay them the 10-cent hourly wage increase granted last fall to operating workers generally. The trustees have advertised their intention to apply for court authority to file with the Interstate Commerce Commission a petition to abandon the entire line. The proceedings will undoubtedly be long drawn out, but if total abandonment should be the result it would seem like a pretty stiff price for the strikers —and a lot of other people—to pay, just for 10 cents an hour. See the News section for details.

REBUTTAL STATEMENT: During the Ex Parte 168 rate-increase hearings, two "experts" from the Department of Agriculture attacked the operating efficiency of the country's railroads. Their "evidence" has just been completely refuted in a statement filed with the I.C.C. by Arthur H. Gass, chairman of the Association of American Railroads' Car Service Division. Mr. Gass' rebuttal is reported, along with other interesting developments of the week, in the News pages.

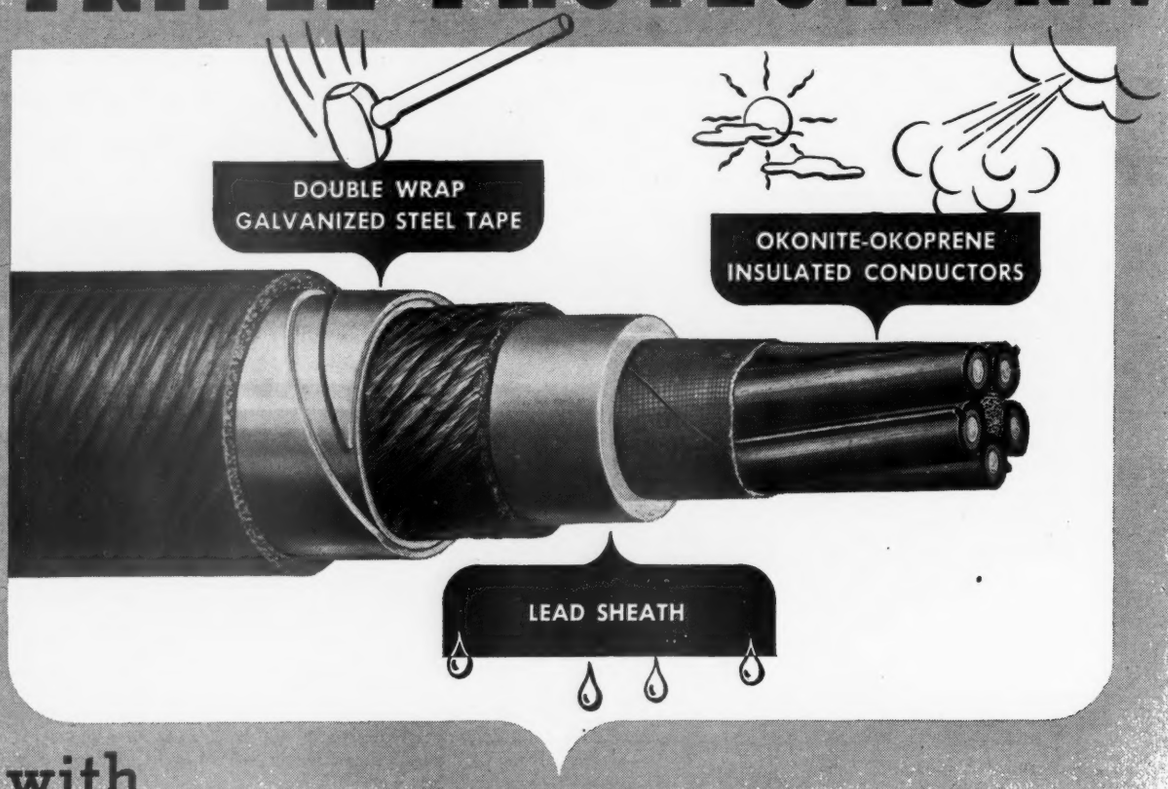
THE VALUE OF A COAT OF PAINT: How scientific color painting of potential accident hazards in the shops of the New York City Transit System is helping to produce savings of $500,000 a year is described in an article by Faber Birren, industrial color consultant—page 39. The savings resulted principally from a 42.3 per cent reduction in accidents, following the introduction of color combined with improved safety training.

LOWER GRADE MEANS HIGHER TONNAGE: By spending approximately $2,800,000 on line relocation, the Norfolk & Western has increased by more than one-third the tonnage of its westbound coal trains, and reduced the running time of its manifest freight and passenger trains, between Portsmouth, Ohio, and Cincinnati. Details of the work, and of the benefits resulting from it, are given in an illustrated article beginning on page 40.

THE COURAGE OF HIS CONVICTIONS: Not long ago, Col. J. Monroe Johnson, director of the Office of Defense Transportation, suggested that the government acquire, "as part of armament," some 550,000 freight cars. This week, as reported in our News columns, he has defended his ideas in vigorous letters to Ralph Budd and Fred G. Gurley, who, as reported two weeks ago, had criticized the colonel's proposal in interviews at Chicago.

SOCIALISM BY "DEMOCRATIC PROCESS": In Great Britain and to an increasing extent in this country, a system of state socialism is being established by "democratic processes." Economically, the results of such peaceful "democratic" socialism are no different from force-established "Communistic" socialism—either one will, in the end, undermine and destroy the present productiveness of the United States under the private enterprise system. Because this and other elementary facts and principles are so generally disregarded, by so many people, they are reviewed and commented on in our leading editorial.

TRIPLE PROTECTION...



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SOCIALISM BY "DEMOCRATIC PROCESS"

The writer of these lines formerly contended that socialism would never be established in any country excepting by force. The Communists avowedly believe that socialism should be and can only be established by force.

We are seeing proof every day that this view is erroneous. The establishment of socialism involves the transfer of most property from private ownership to government ownership. This writer formerly believed that private owners would so resist efforts to take their property that only force could dispossess them. Throughout the world, however, in non-communist countries we see socialism being established mainly, although not entirely, by the "democratic process." Admittedly, there has been thus far a wide difference between the kind of government by which socialism has been established and maintained in Russia and the "democratic process" by which it is being established in Great Britain. Under the system in Russia the individual is a slave of the system—i.e., of the state. Under the system in Great Britain the individual is still in most ways a free man who can criticize and vote against the party in power.

But socialism is always *economically* the same thing. Whether established by force or by the "democratic process" it replaces individual, private ownership and management of the property by which the production and distribution of goods and services are carried on, with government ownership and management of that property. And every socialistic policy adopted, in effect, transfers part of the ownership and management of property from individuals to government. Taxes which take an increased part of the income from property, in effect, transfer part of the ownership of the property to government. Every increase in government controls of the use of property transfers part of its management from private hands to government bureaucrats.

Transportation First

Transportation was the first of our great industries to begin to be subjected to socialization. The socialization of transportation has been continued apace by taxation which has taken increased parts of net earnings from the private owners, and by regulation which has transferred functions of management from railway officers to government authorities; and, in the process taxes collected in part from the railways have been used to build waterways, highways, and airways to compete with the railways. Socialization of transportation has now gone so far that government owns more of the plant used to produce transportation than is owned by private capital.

This same process of socialization—i.e., adoption of numerous specific policies which most persons

do not recognize as socialistic—will doubtless now be applied to other industries as it has been to the railroads, until complete socialism is established—unless the great middle class, comprising people who own or desire to own property, organizes to resist this process as effectively as its promoters are organized to promote it.

Few persons in the United States, and probably in most other non-communist countries, believe that government management would produce more and better goods and services than private management. Why, then, do so many favor socialistic policies, or some form of socialism? They do so because they desire changes in the *distribution* of goods and services—i.e., changes in the division of the money income with which goods and services are bought. They believe that under the capitalistic system some of the people get too much and some too little of the national income; and that socialistic policies or outright socialism will make the division of the national income more equitable, or less unequal—or, perhaps, more favorable to themselves. Almost every person in this country, whether businessman, farmer, or member of a labor union, who supports any socialistic policy believes that that policy will help him get a larger share of the national income.

But the *production* of goods and services must precede their distribution. The larger the volume of goods and services produced, the more of them there are and will be to divide. Hence, it is of primary importance that nothing be done which will reduce or restrict the production of goods and services; and that the production of goods and services be made as large as is reasonably practicable. And a vitally important fact almost always overlooked by promoters of socialistic policies is that *the way in which goods and services are divided mainly determines in the long run how much goods and services will be produced.* The reason should be obvious. The income of each worker, or company, or industry, is the reward for his or its contribution to the total goods or services produced. When it is known that the rewards for the contributions made to total production will be in proportion to the size and value of the contributions, these rewards constitute the strongest possible incentive to the efficiency of every worker and of the management of every company and industry. Whatever increases the disproportion between (1) the contributions made to the general economic welfare, and (2) the rewards for these contributions, inevitably weakens the incentive to efficiency and thereby the efficiency itself.

Elementary Facts

Why do we seriously emphasize such elementary economic facts and principles as the foregoing? Because literally scores of socialistic policies are being adopted and proposed, the advocates of which blandly assume that the distribution of the goods and services constituting the national income can be radically changed without affecting the volume of them produced. Unfortunately, many of these policies, especially that of subsidy, are being favored even by businessmen and farmers who believe they are now benefiting and will benefit by them in total disregard of their plain tendency, when combined with socialistic policies promoted by other pressure groups, first, to impair the efficiency of the entire private enterprise system of the United States and, in due course, completely to undermine and destroy its productiveness. When there is such universal disregard of elementary facts and principles, it can hardly be regarded as useless to recall and emphasize them.

SOMETHING NEW ON RAILS

An idea from Spain has been developed and translated into a lightweight passenger-train design that may have possibilities in American service. When applied to the A.C.F.-Talgo train, described in this issue, "lightweight" is not the meaningless term it has become in some cases, because the 37,400-lb. articulated coach is less than one-third of the weight of comparable conventional coaches. With American car designers losing the "battle of weight" as new conveniences and comforts built into passenger cars wipe out gains made by the utilization of lighter or stronger structural materials, new processes of construction and better design, the weight saving in the Talgo train is sufficient reason to warrant careful study of its possible applications.

The Talgo idea, as refined and converted into reality by the builder, is unusual in its use of the "trailer principle," its simplicity and its employment of aircraft structural materials and design. With each two-wheel car unit supported and guided by the unit ahead, and with its center of gravity two feet lower than conventional equipment, the train takes curves at higher speeds with greater comfort than trains made up of conventional passenger-train cars; the wheels are led around curves without tendency to climb the outer rail. By placing all normal under-car equipment, such as air conditioning units, batteries and air brakes (Talgo has automotive type brakes), in the center equipment unit, the designers have greatly simplified construction.

The most obvious disadvantage of such a train is the lack of flexibility in its consist. While units can be coupled and uncoupled, these are more in the nature of shop operations than those customarily required to alter the consist of a passenger train.

The locomotive designed and built for the Talgo train differs from normal construction in that it is powered with automotive-type Diesel engines, and also serves as the head-end power car for the entire train. With the low axle-loading of 33,750-lb. and low center of gravity, the locomotive was designed

to exploit the advantages of the train it hauls—in fact, the locomotive is the limiting factor in determining the speed at which the train can operate.

Departing so widely from customary practice, the Talgo design will have to prove itself in service before its inherent advantages can be calculated. The economic value of its physical characteristics is such, however, that it deserves careful study by both railroad engineers and operating men.

FEWER SIDINGS

When considering the reconstruction of existing signaling or new projects of signaling on single-track lines, study may profitably be given first to the practicability of reducing the number of sidings to accord with the requirements of the proposed methods of train operation. The objective of such studies should be not only to minimize the first costs of the signaling, but also to reduce the maintenance costs chargeable to sidings, so that a system best adapted for improving train operation can be justified economically.

In days gone by, when trains were shorter, more numerous and slower, sidings were spaced relatively close together. On some lines, sidings may be spaced an average of three miles, on other divisions up to five miles. Under the conventional practice of authorizing train movements by timetable and train orders, all these sidings may come in handy at times —therefore, dispatchers and other operating officers may object to removing any of them.

The application of conventional automatic signaling requires head-block signals at both ends of every siding used for meeting trains, and full arrangements of intermediate signals are needed to provide head-on protection for opposing trains. Such a system is primarily for protection, train movements being authorized, as before, by timetable and train orders.

An opportunity, therefore, exists in many reconstruction programs, as well as new projects undertaken under Interstate Commerce Commission orders, both to secure the advantages of train operation by signal indication and to reduce the number of sidings, by installing centralized traffic control. Reduction in the number of sidings is an important factor which cuts the cost of a C.T.C. project to make it not too much more than conventional automatic block applied to the existing sidings.

"How I can run the railroad with half the number of sidings is something I want to see"—said one dispatcher. When one road was making preliminary studies in territory using timetables and train orders with hand-throw switches, 21 min. were required for a freight train to depart from siding A, go five miles and get in the clear on a siding at station B. Later, with C.T.C. in service, a freight train of the same type and tonnage was operated from siding A, over the road 10 mi. to station C, and into the clear on the siding, in a total of 18 min. The time required to travel the additional 5 mi., plus the overall reduction of 3 min., was saved by the elimination of train stops through the use of power switches and by the increased speed allowed with the new 30-m.p.h. turnouts.

A coordinate advantage of C.T.C. is that the dispatcher by indication on his panel knows the locations of all trains, so he can advance them for close meets.

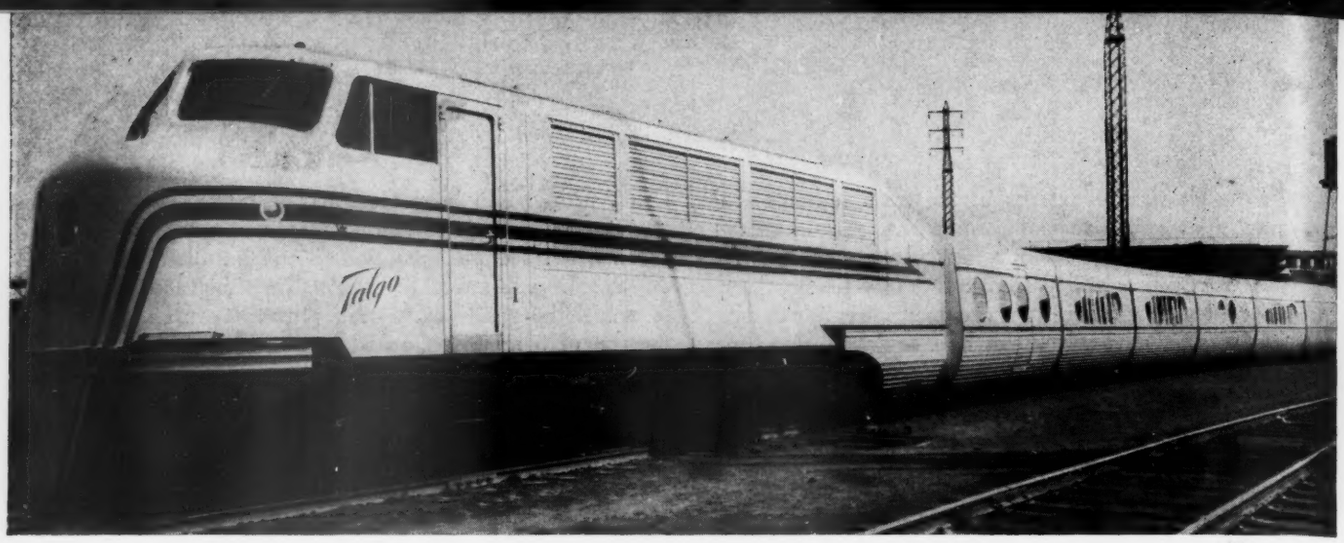
This not only saves train time, but of importance in this discussion is the fact that he has immediate control of the availability of sidings, permitting him to use them to a greater advantage than with timetables and train orders. Furthermore, with C.T.C., on a busy single-track line, through freight trains save an average of about 1 min. per mile. On a 120-mi. division these trains save about two hours, most of which previously was lost while making meets at sidings. Siding occupancy time is greatly reduced, therefore, which is an important reason why sidings are more generally available.

Thus, with the same number of trains, and with sidings roughly twice as far apart, the dispatcher, by means of C.T.C., can get trains over the road faster.

Railroad people who want specific information on just how such results can be accomplished will find it in a description of a project on the Pere Marquette district of the Chesapeake & Ohio in *Railway Age* of April 2, and in articles published previously about installations on the Louisville & Nashville, the Rock Island, the Missouri Pacific, the Seaboard and the Milwaukee. By reducing the number of sidings in connection with C.T.C. installations, these and other railroads have found it practicable to install this complete modern system of signaling instead of conventional automatic block, and thereby get much more for their money in the long run.

Why is freight cross-hauled? I don't know all the reasons why—nobody does—for there are so many of them, variously combined in each individual case. But I do know that there *are* reasons for most certainly nobody ships freight for fun. Nobody gives himself the pleasure of crating it up, and loading it and paying the charges, just for the fun of doing it. Shipping freight is not a game. It's a business, and for every shipment made, there is a reason, or more likely a whole complex of reasons adding up to one controlling fact, namely, that somebody thought that the freight shipped would have enough more value at destination than at point of origin to make it worthwhile to go to the trouble and pay the cost of shipping it.

—William T. Faricy, president, Association of American Railroads, in an address to the Kansas City Chamber of Commerce, April 13.



A. C. F.-TALGO TAKES TO THE RAILS

Unusual design features articulated coach of five two-wheel units weighing 37,400 lb. and seating 64 passengers

A demonstration train, based on the Spanish "Patentes Talgo" and representing a radical departure in passenger-car construction, was introduced to the public for the first time on April 20 by the American Car & Foundry Co., when A.C.F.-Talgo made a press run between Hoboken, N. J., and Dover over the tracks of the Delaware, Lackawanna & Western. Consisting of an A.C.F.-built locomotive, one baggage unit and one coach of five units, the A.C.F.-Talgo is the first of three such trains to be built; the other two of 16 units each will be placed in service in Spain between Madrid and the French border, a distance of approximately 500 miles. The A.C.F.-Talgo is being demonstrated to determine its possible applications to American passenger service.

Trailer Principles Used

The car design is unique. The coach consists of four articulated passenger-carrying units and one equipment unit, each unit having only one pair of wheels placed at the rear. The front end of each unit is supported by a special coupling arrangement on the back end of the unit ahead. The independent baggage unit is carried at the front by a trapazoidal linkage at the rear of the locomotive, which is on conventional-type trucks. Entrance to the coach is made through the equipment unit placed midway in the group of four-passenger-carrying units.

The coach is about 101 feet long and seats 64 passengers, 16 in each passenger unit. However, the A.C.F.-Talgo includes the observation lounge seating 16 passengers instead of the fourth passenger unit and this section adds seven feet to the coach length. The Spanish trains will seat 176 passengers in three coaches plus 16 seats in the observation lounge.

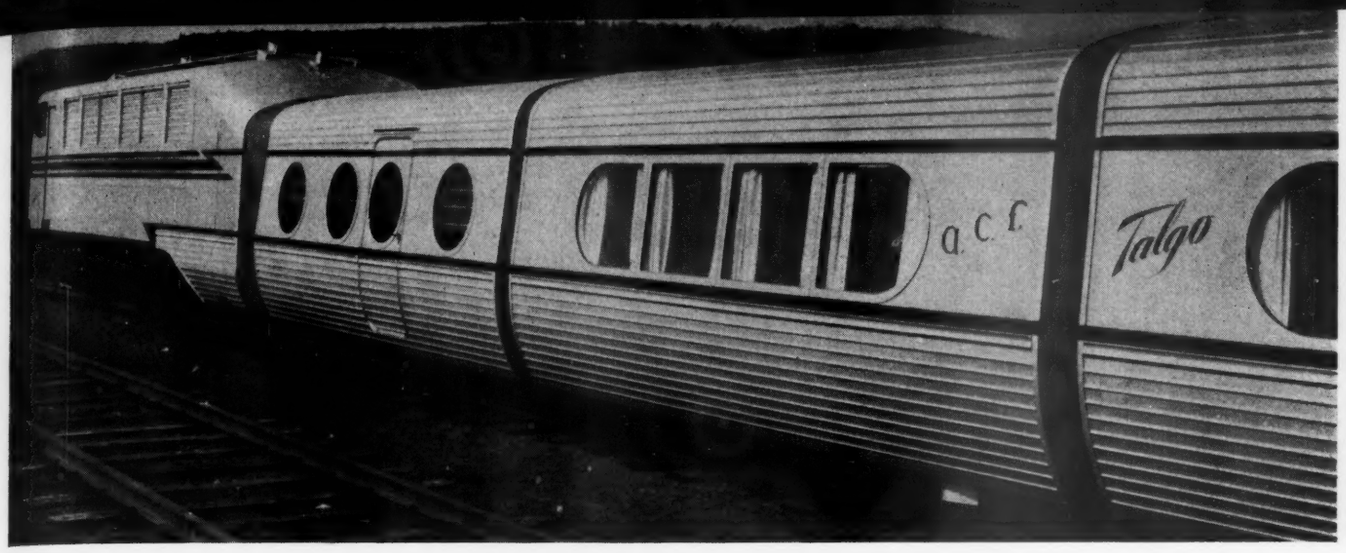
The A.C.F.-Talgo coach has a squat appearance. Its height of 9 ft. 7 in. is about four feet less than a standard coach and its floor level is 2 ft. 9 in. lower. The overall width is 10 ft. 7½ in.; the inside width is 10 ft. 1⅛ in. With each passenger unit weighing 6,700 lb. and the equipment unit 10,600 lb., the five-unit coach weighs 37,400 lb. This is increased by 1,500 lb. when the observation lounge replaces one of the passenger units. The baggage unit weighs 6,300 lb.

The heating and air-conditioning plants for each coach are carried in the center equipment unit, from which the conditioned air is distributed through overhead ducts. In addition the equipment unit contains a kitchenette, a wardrobe, control lockers and the toilet facilities for the coach. Electric power for the entire train is supplied by engine-generator sets in the locomotive. Water is supplied under pressure to the equipment cars from 300-gal. tanks on the locomotive through copper tubing and flexible connections between the units.

Coach Construction

Aircraft-type aluminum alloys are used for all body framing. The U-shaped center sill is an extruded section 5½ in. deep. Cross bearers, floor beams and floor stringers are Z-sections. Two parallel extrusions, one assembled with the underframe, the other with the side assembly, form the side sill. A false floor of Alclad sheet is riveted to the bottom of the underframe.

Combination one-piece side posts and carlines from the cross-section contour from the side sill to the center of the roof. Channel-section side plates hold the side posts in position. For tying in the skin metal between the joints belt and drip extrusions are used.



The locomotive is two feet lower, the car units about four feet lower than conventional equipment

The roof and the sides from the bottom of the window sill down are beaded aluminum-alloy sheets. Flat sheets are used between the belt and drip extrusions. The two purlines are extruded J-sections.

Where partitions are required, the car ends are of metal bonded to plywood, otherwise they are open to form a continuous coach. For weather protection and to form a smooth interior and exterior, rubber diaphragms are applied between the units. These are closed by special zippers with sealing lips.

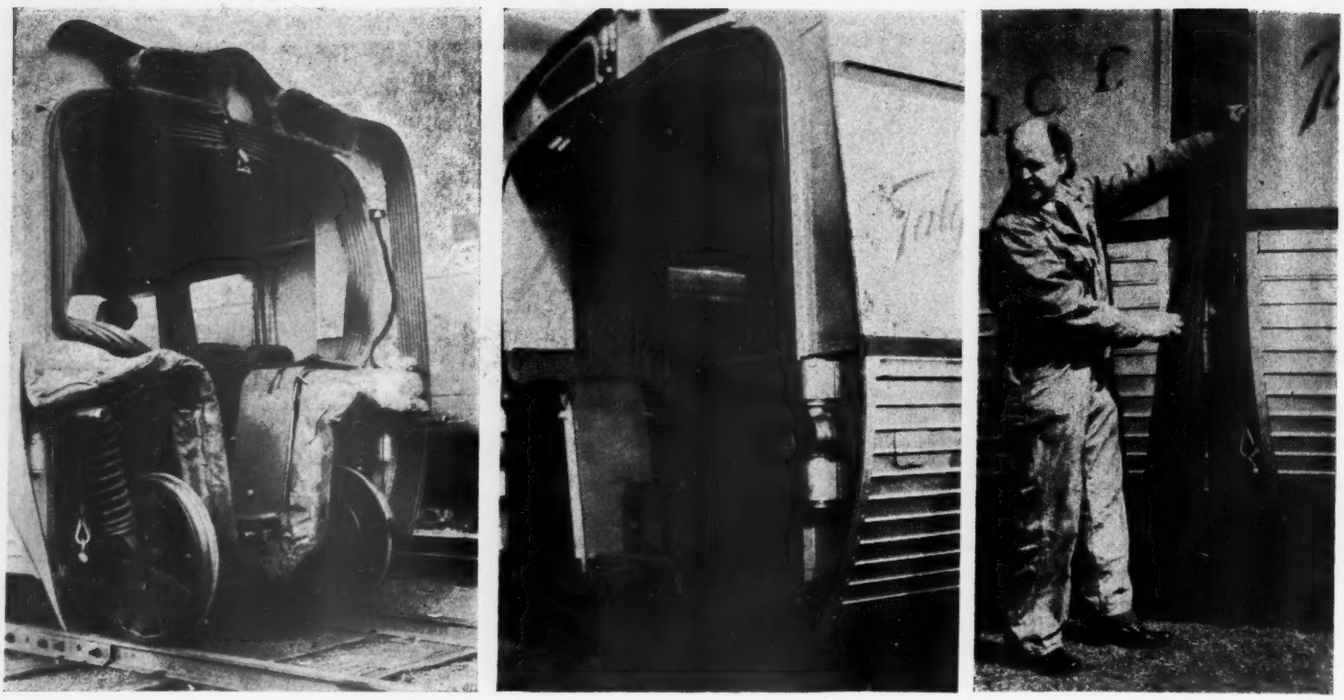
Couplings

The Talgo units have no draft gear. The coupler is a simple jaw-and-pin arrangement which normally only transmits the pulling forces. In an emergency the coupler will pivot on its connections and carry the entire load of the front end of the unit. The vertical load normally is carried by two load bearers, 32 in. above the rail, consisting of a socket member on each side at the front and a matching horizontal pin member at each side of the rear of each unit. These supporting members are approximately at the level of the center of gravity. The load bearers, together with the two wheels, make a four-point suspension for each unit. These load bearers will also take a pulling load in an emergency through a circular slot and key arrangement on the pin members. Two steel safety cables will also pull and support each unit if the other couplings should fail.

Running Gear and Brakes

The two wheels are similar in design to those used on P.C.C. street cars. They have built-up wheel centers of welded construction with a steel tire resiliently

Interiors of a coach unit and the observation unit. The aisle contour shows how the articulated train follows the track curvature



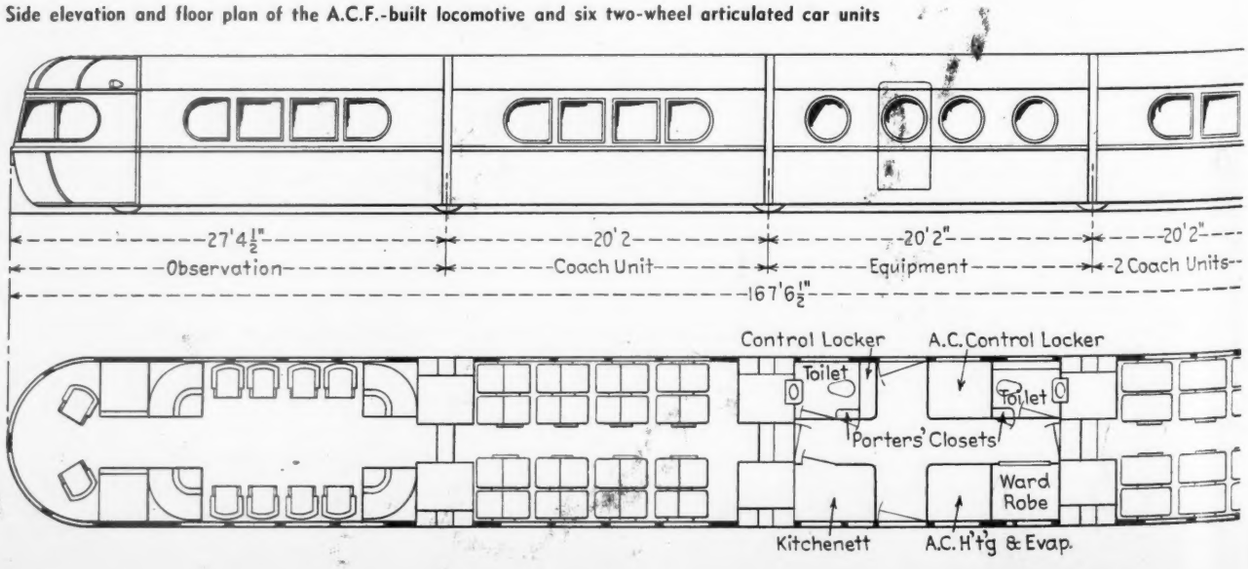
Left — The back end of a coach unit. Center — The matching front end of the following coach unit. Right — Outside and inside rubber diaphragms are closed by zippers with sealing lips

connected to the core by a rubber sandwich which reduces running noises. Brake drums are fastened directly to the wheels and are designed for automotive-type internally expanding brakes. The brakes are hydraulically operated from a power cluster and relay valve in each equipment unit which in turn is operated by the engineman's air brake valve. The maximum brake-cylinder pressure is 100 lb. per sq. in. which results in a 250 lb. per sq. in. pressure in the hydraulic system.

The wheels are equipped with roller bearings and mounted on stub axles which are spaced by means of fittings and a non-rotating U-shaped tubular axle to maintain track gage. Connecting the end of the stub axle with the car body is a vertical helical spring and integral hydraulic snubber, with universal joints and resilient bushings at the ends. There is one horizontal stabilizer per unit, consisting of a double-acting torque bar attached from the fixed axle to the center sill through rubber bushing joints and a shock absorber. These elements, together with sway bars and radius rods, provide vertical and horizontal elasticity without permitting the unit to roll. The radius rods maintain the stub axles in alinement and resist braking torque.

At the front end of each unit an auxiliary jacking assembly is located directly over each rail. Each assembly consists of retractable flanged dolly wheels actuated by a crank and worm gear. When these

Side elevation and floor plan of the A.C.F.-built locomotive and six two-wheel articulated car units



PARTIAL LIST OF MATERIALS AND EQUIPMENT ON A.C.F.-TALGO

Aluminum sheets, plates, bars, extrusions, forgings and castings	Aluminum Company of America, Pittsburgh, Pa.
Aluminum pressings	Edo Aircraft Corp., New York
Steel castings	Lebanon Steel Foundry, Lebanon, Pa.
Truck material	General Steel Castings Corp., Granite City, Ill.
Plymetl	Haskelite Manufacturing Corp., Grand Rapids, Mich.
Panels	Harrington & King Perforating Co., Chicago
Diaphragms	B. F. Goodrich Co., Akron, Ohio
Wheels and axles	Bethlehem Steel Co., Bethlehem, Pa.
Roller bearings	Timken Roller Bearing Co., Canton, Ohio
Springs	Railway Steel Spring Division, American Locomotive Company, New York
Wheel assemblies	Carnegie-Illinois Steel Corp., Pittsburgh, Pa,
Shock absorbers	Monroe Auto Equipment Co., Monroe, Mich.
Wear plates	Manganese Steel Forge Co., Philadelphia, Pa.
Air brake equipment	Westinghouse Air Brake Co., Wilmerding, Pa.
Clasp brakes	American Steel Foundries, Chicago
Hand brakes	National Brake Co., New York
Brake shoes	American Brake Shoe Co., New York
Sash and hardware	Adams & Westlake Co., Elkhart, Ind.
Sash	Hunter Sash Co., Flushing, L. I.
Linoleum—cork	Armstrong Cork Co., Lancaster, Pa.
Insulation	Johns-Manville Sales Corp., New York
Fibreglas	Gustin-Bacon Manufacturing Co., Kansas City, Mo.
Mortex	J. W. Mortell Co., Kankakee, Ill.
Doors, formings	Bellanca Aircraft Corp., New Castle, Del.
Lavatories	Crane Company, Chicago
Hoppers	Dayton Manufacturing Co., Dayton, Ohio
Kitchen equipment	Angelo Colonna, Philadelphia, Pa.
Smoking stands	Harmo Distributing Co., New York
Glass and mirrors	Pittsburgh Plate Glass Co., Pittsburgh, Pa.
Seats	Warren McArthur Corp., New York
Radiators	Perfex Corp., Milwaukee, Wis.
Drape material	F. Schumacher & Co., New York
Engines, Diesel	Hercules Motor Corp., Canton, Ohio
Fans, engine	Coward-Eastman Co., Philadelphia, Pa.
Water Pumps	Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Mufflers	Burgess Manning Co., Libertyville, Ill.
Sanding equipment	Prime Manufacturing Co., Milwaukee, Wis.
Cab heaters	Consolidated Car Heating Co., Albany, N. Y.
Windshield washers	C. A. Sprague Devices Co., Michigan City, Ind.
Fire extinguishers	Fyr Fyter Co., Dayton, Ohio
Traction motors	General Electric Co., Schenectady, N. Y.
Generators, alternators	International General Electric Co., New York
Batteries, Exide	Electric Storage Battery Co., Philadelphia, Pa.
Batteries, Philco	Gould Storage Battery Co., Trenton, N. J.
Electrical fittings	Pyle National Co., Chicago
Relays	Allen-Bradley Co., Milwaukee, Wis.
Circuit breakers	Westinghouse Electric Corp., Pittsburgh, Pa.
Safetee glass, Kalistron	Waterhouse & Co., Webster, Mass.
Light fixtures	Safety Car Heating & Lighting Co., New York
Lights	Wiedenbach-Brown Co., New York
Telephone equipment	Raymond Rosen Co., Philadelphia, Pa.
Temperature control	Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Thermostats, Chronolox heater	Edwin L. Wiegand Co., Pittsburgh, Pa.
Blowers	American Blower Corp., Detroit, Mich. Buffalo Forge Co., Buffalo, N. Y.
Fans	Diehl Manufacturing Co., Somerville, N. J.
Air filters	Air-Maze Corp., Cleveland, Ohio
Electrical equipment	Crannell, Nugent & Krenzer, New York
Anemostats	Anemostat Corp. of America, New York
Grills	Barber Coleman Co., Rockford, Ill. Diamond Mfg. Co., Wyoming, Pa.
Locks	Yale & Towne Mfg. Co., Stamford, Conn.
Latches	United-Carr Fastener Corp., Cambridge, Mass.
Flexible hose and fittings	Aeroquip Corp., Jackson, Mich.
Metal hose	Zallea Brothers, Wilmington, Del.
Paint	E. I. duPont de Nemours & Co., Inc., Wilmington, Del.
Alumilastic	Parr Paint & Color Co., Cleveland, Ohio

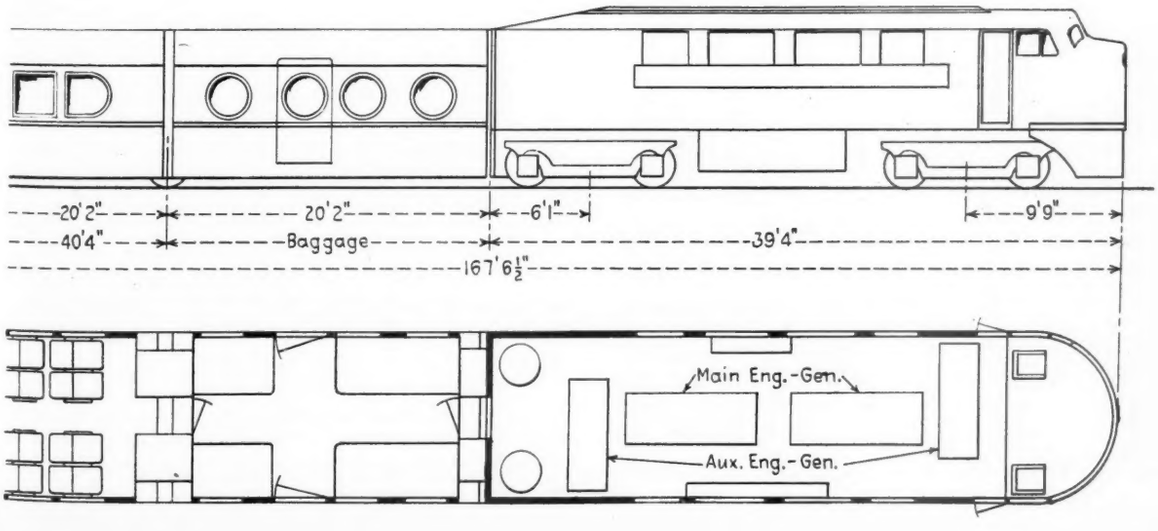
wheels are lowered to the rail the assembly raises the front end of the unit to permit coupling and uncoupling and also movement of the unit independent of the train.

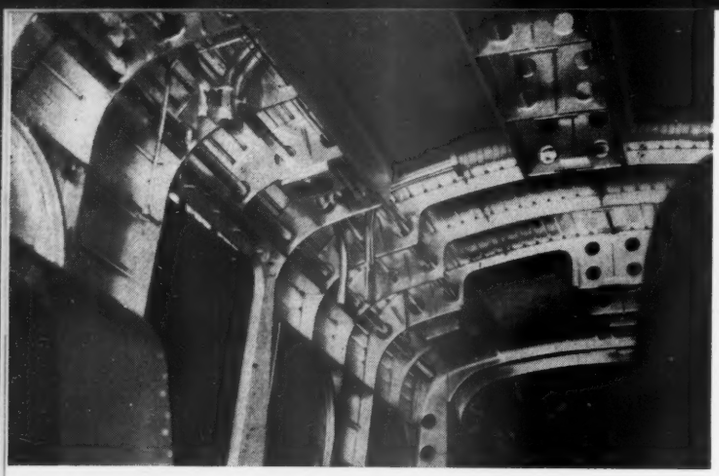
Interior Appointments

The A.C.F.-Talgo has been planned to show just one of many possible arrangements of the interior. There are eight double reclining airplane-type seats, with individual ash trays, in each passenger unit. These are spaced on 42-in. centers.

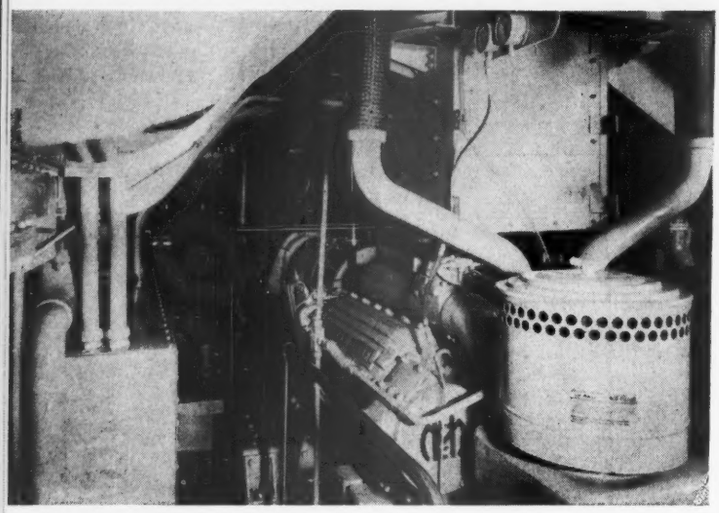
The wainscoting is 1/8-in. Plymetl and the headlining to the wainscoting is aluminum. The floor covering is 3/16-in. rubber. Double-glazed windows are used, two on each side being rectangular and two having semicircular ends. Wheelbox covers are installed to conceal the opening between the cars and the wheels. As the floor level is only 18 in. above the rail the passengers walk between the wheels when moving from one unit to another.

Designed and built especially for Talgo service by the American Car & Foundry Co., the locomotive is powered by four automotive-type Diesel engines. The





Framing details of the aluminum-alloy car structure. The units were made in three parts: underframe and two side-and-half-roof sub assemblies



Two 405-hp. automotive-type Diesel engines supply traction power. Two auxiliary Diesel engines provide power for lighting, air conditioning and heating

two main engines deliver motive power and two auxiliaries supply all train power.

The locomotive has a service weight of 135,000 lb., a coupled length of 39 ft. 4 in., and a height over the horn of 12 ft. 6 in. It is equipped with single-end controls as the locomotive operates permanently as part of the train.

The Locomotive

The locomotive is of all-welded construction and the entire underframe is stress-relieved. Two 12-in. low-alloy high-tensile-steel channels spaced 42 in. apart form the center sills and only one cross bearer is employed. The wide spacing permits the main propulsion engines to be suspended as close to the rails as possible.

Traction power is developed by two power plants each consisting of a 405-hp. Hercules V-type Diesel engine, driving a General Electric d.c. generator. The generator exciter and auxiliary generators are driven from the main shaft by vee belts. The auxiliary is used to charge the battery and to supply the d.c. train line. The battery consists of four 32-cell sets of Exide type LX-25-G cells having a capacity of 201 amp.-hr. at the 8-hr. rate. It is used for engine starting and supplies auxiliary circuits when the engines are not running.

The two traction generators are normally connected in parallel when the locomotive is in operation, but either of them may be used separately. There are four G. E. traction motors, nose-suspended and geared to the axles. The control station, in only one end of the locomotive, includes a controller with an idling and eight running positions.

The tractor motors are force-cooled, the ventilating air being supplied by a Buffalo Forge Company blower, direct-driven by a General Electric, 5-hp., 2,880-r.p.m., 3-phase, 230-volt, 50-cycle motor. Compressed air for brakes is supplied by a Westinghouse 3YC, two-stage compressor, driven by a General Electric, 5-hp., 1,430-r.p.m., 230-volt, 3-phase, 50-cycle motor through vee belts.

Power for the blower and air compressor and also for train heating, air conditioning and lighting is developed on the locomotive by two-engine generator sets. These sets, mounted transversely near each end of the locomotive, consist of two 6-cylinder Hercules engines driving 3-phase, 230/108-volt, 1,500 r.p.m., a.c. generators each rated 100 kw. at 80 per cent power factor. Each generator has a 125-volt, vee-belt-driven exciter.

The a.c. generators may be operated separately or in parallel, and synchronizing is automatic. When one machine is on the line, and it is desired to bring in the other, the second machine is started and allowed to come up to constant speed and voltage. Pushing a paralleling button drops the load from the first machine automatically, connects the two together at no load, and reapplies the load. This is done in a few seconds.

Heating, Air Conditioning and Lighting

Power for train requirements is distributed by two train lines. One is a 300,000 cm., three-phase, 230-volt a.c. line, and the other is a two-wire, 64-volt, d.c. line used for emergency lights in the coaches and markers. A neutral wire for the three-phase line is run with the d.c. line. These lines are run overhead in the units, on opposite sides, in rigid-metal conduit. They are terminated in sockets at the ends of each unit, and connection is made by flexible plug couplings.

The three-phase power is brought to a panelboard located at the center of each equipment unit. Secondary circuits from the board supply a refrigerant compressor, a grid-type heating element, a blower and the car lighting circuits. Ventilation, cooling, heating and lighting are supplied from the equipment unit to the two passenger-carrying units attached on either end.

There are two four-ton refrigerant compressors in each equipment unit, each weighing only 208 lb. The compressors are driven by 5-hp., 50-cycle, three-phase, a.c. motors. Cooling air for the compressors and evaporators is brought in and exhausted through a circular louver in the side of the car, while the 25 per cent of fresh make-up air is brought in through a grill on the same side.

Conditioned air is delivered to each unit and return air is picked up from each unit by two Anemostats placed in the center of the ceiling. The air is supplied through overhead ducts, one on either side of center,

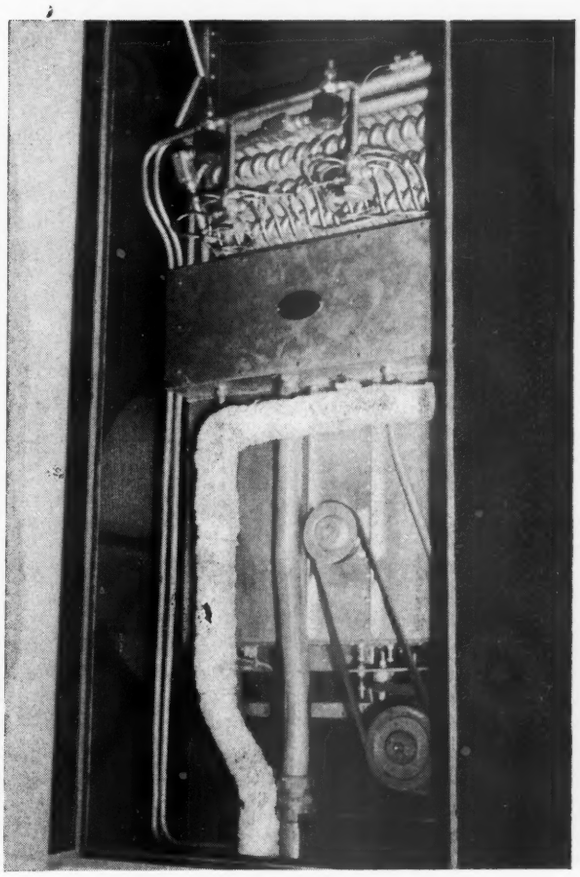
by a motor-driven blower having a capacity of 2,000 cu. ft. per min.

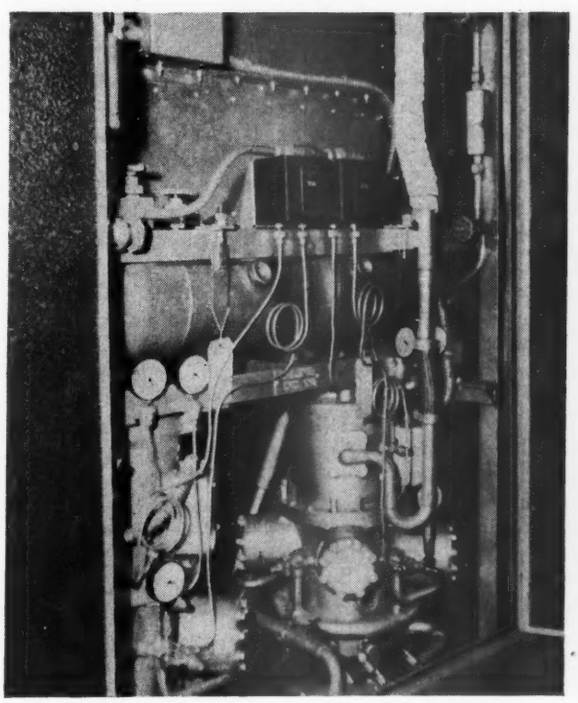
Electrically heated grids are used for heating the units through the same ducts that are used for cooling. There are two banks of grids, each of 21 kw.

Electronic temperature controls, supplied by Minneapolis-Honeywell. are used to regulate both the air-conditioning and heating. The change from heating to cooling is automatic.

Each passenger unit is lighted by ten 36-in., 30-watt fluorescent lamps one inch in diameter. There are five on each side, arranged in a line over the windows. The lamps are in Plexiglas enclosures louvered on the lower surface and clear on top. Between the two fluorescent units at each end are tubular metal enclosures containing six-watt incandescent night or emergency lights. Light from these lamps is projected to the ceiling through openings in the tops of the enclosures. They are supplied from the 64-volt d.c. trainline.

The fluorescent lamps are operated on a.c. power at 108 volts, this being the voltage between any of the three-phase feeders and ground. The equipment car is lighted by 108-volt incandescent lamps in lens-type units.





Air conditioning evaporator and blower (above) and the two lightweight compressors and the condenser (below) in the equipment car unit

ON FINANCING RAILROAD IMPROVEMENTS

In the light of recent history, the railroads would be justified in embarking upon extensive new outlays upon fixed improvements only if a considerable part of the cost could be financed with stock issues. Several factors make this impracticable.

First and foremost, repeated demands from railway employees for sweeping increases in wages seriously threaten the future earnings power of the industry. The drive for 48 hours' pay for 40 hours' work illustrates anew the danger involved.

The Interstate Commerce Commission says, in its annual report, that "cooperation of employees, from top to bottom, is a first essential for the application of remedial steps." The most essential type of cooperation is to refrain from demanding wage increases that are not justified by increased productivity of labor. Unfortunately, railway labor has so far given no indication whatever of this kind of cooperation.

Secondly, the railroads must be in position to pay out a larger proportion of earnings as dividends to their stockholders. They have been distributing only about a quarter of their earnings in the past few years. Despite the recovery in the industry's earning power during the current decade, dividends in no year have been as high as in any year of the Twenties.

Finally, some improvement must be seen in the general market for corporate equities.

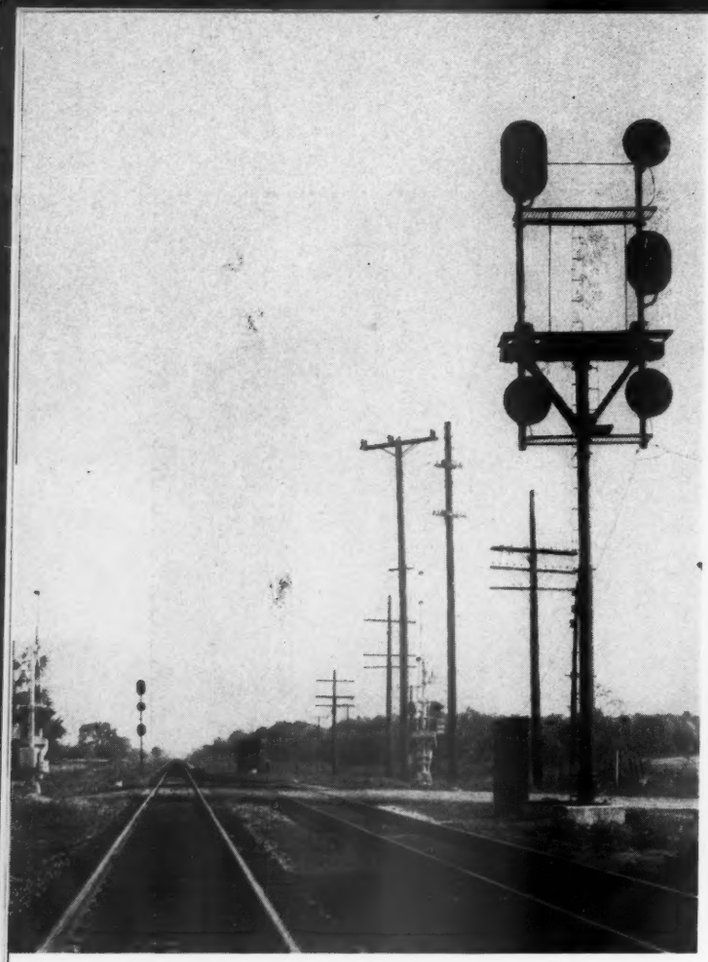
The I.C.C. is on the right track in saying that intensive modernization of railroad facilities to bring down operating costs is required to safeguard the industry's position in the keenly competitive transportation era that lies ahead. But this advice involves the investment of large additional sums in fixed improvements, as well as in rolling stock. To do this on a sound basis, a large part of the financing involved must take the form of stock issues.

Railroad stock financing has been utterly negligible for more than a decade. It will take a changed attitude on the part of railway labor, as well as of investors, to correct this unsound situation.

—*The New York Journal of Commerce*

A Whole Railroad of C. T. C.

The Nickel Plate is well along on a program of train operation by signal indication on all single-track through routes, Buffalo to Chicago and St. Louis



Main track station-leaving signal and leave-siding signal are on one bracket mast

The New York, Chicago & St. Louis is now far advanced on an extensive program of installing centralized traffic control on all single-track sections on its through routes. Seven sections of C.T.C., totaling 281 mi., are now in service. As each was completed, a decided improvement was noted in operations. Train movements are now authorized by signal indication instead of train orders, thus saving time by making closer meets. Also, power switch machines, longer turnouts and special signal aspects are aids in reducing time previously lost in entering and leaving the sidings.

Westward from Buffalo, N. Y., through Cleveland, Ohio to Arcadia, 285 mi., the Nickel Plate has four sections of single track, totaling 106 mi., which were equipped with centralized traffic control prior to 1948. Westward from Arcadia it has two principal lines, including both single and double track, one leading to Chicago, 237 mi., and the other to St. Louis, 434 mi. The Chicago line has been protected by automatic signals for many years. The single-track sections on this line are Arcadia to New Haven, Ind., 78.8 mi., on which the C.T.C. construction is nearing completion; and Hadley, Ind. to Van Loon, 120.4 mi., on which, for 33.5 mi.—Hadley to Claypool, Ind.—C.T.C. is now in service.

On the 434 mi. between Arcadia and East St. Louis, where no automatic block was previously in service, the 188 mi. from Arcadia to Frankfort, Ind., are being equipped with centralized traffic control. On the first section, 63 mi., between Arcadia and St. Marys, Ohio, C.T.C. has been completed, and on the remainder, 60.8 mi. between Frankfort and Muncie, and the 64.1 mi. between St. Marys and Muncie, C.T.C. is authorized and will be completed during 1949. The completion of this project will provide operation by C.T.C. or double track westward from Buffalo to Claypool and Frankfort. The installation of some form of signaling westward from Frankfort to St. Louis, 248 mi., is being studied.

The C.T.C. control machines in the territory west of Bellevue, Ohio, are in the respective division dispatcher's offices. One machine, in the office of the dispatcher for the Fort Wayne division, at Fort Wayne, controls the Arcadia-to-New Haven section. A second machine, in the office of the dispatcher of the Chicago division, also at Fort Wayne, controls the Hadley-Claypool section, and is designed to control as far west as Van Loon, a total of 120 mi. The machine at Lima, Ohio, which controls the 63 mi. of C.T.C. now in service between Arcadia and St. Marys, is designed to control a total of 188 mi. between Arcadia and Frankfort.

Low Grades and Easy Curves

Generally speaking, the grades are light on the Nickel Plate lines west of Arcadia. Especially between Arcadia and Fort Wayne, and between Arcadia and Lima, the country is prairie, with only slight rolling grades, and comparatively light curvature. From Arcadia to M.P. 361, a few miles east of Fort Wayne, there are 75 mi. of tangent track, except for curves of 4 min. or less. Likewise, on the St. Louis route, the line is tangent from M.P. 58 at Findley to M.P. 86 at Lima, except for a 15-min. curve at M. P. 74. With such relatively light grades and curvature, trains handle heavy tonnage at good speeds.

In addition to operating two passenger trains each way daily on its lines from Arcadia to Chicago and to St. Louis, the Nickel Plate has six scheduled through freight trains each way, with extra sections as required. For example, on the line between Lima and Frankfort, the normal daily traffic includes four passenger trains and from 12 to 18 freight trains, totaling 16 to 22 trains daily. Approximately the same number of

Power switch machines and new No. 18 turnouts facilitate movements entering and leaving sidings

trains are operated daily between Arcadia and Chicago.

Previously, when train movements were authorized by timetable and train orders, the freight trains lost much time waiting on sidings for meets. Also, time was lost when trains reduced speed and stopped to permit trainmen to operate the hand-throw switches. Now, with centralized traffic control, train movements are authorized by signal indication, and the signals, as well as the power switches, are controlled by the dispatchers. The indication lamps on the track diagram of his control machine inform the dispatcher as to the progress being made by each train, and he can control the signals and switches to direct trains to make meets on very close time.

Fewer Sidings

The Nickel Plate's experience with earlier installations showed clearly that traffic can be handled efficiently by C.T.C. with fewer sidings than are required under operation by train order and timetable. Whereas 36 sidings had previously been used between Arcadia and Frankfort, the new project included power switches and C.T.C. controlled signals at only 23 of these sidings. In general, these sidings are about 6 to 9 mi. apart. At 13 other locations, the existing sidings either were removed or left in place with the hand-throw switch stands in service for use as house tracks or switching spurs to serve local industries. In general, the sidings to be power equipped as part of the C.T.C. were lengthened to a minimum of 7,500 ft. where physical conditions permitted.

The signals now in service in these C.T.C.-controlled territories provide a complete range of aspects to direct trains to utilize the track facilities most effectively. With certain exceptions the turnouts at the ends of double track, and at the ends of the sidings used by through trains, are No. 18, with 30-ft. points, which are suitable for diverging train movements at medium speed. Furthermore, the sidings have been brought up to a standard of construction and maintenance to permit trains to operate on them at medium speed. Track circuits on these sidings are used to control the aspects of signals to direct trains to enter them, and the same circuits control appropriate track-occupancy lamps on the C.T.C. control machines. Each station-entering signal has the equivalent of three operative "arms." The top one is a standard three-unit head. The second is a single-lamp unit that is normally dark. but which can be lighted yellow. The third "arm" is a two-unit head, which displays either red or yellow.

If a siding is unoccupied, when the entering switch is reversed and the station-entering signal cleared for an approaching train to enter, the aspect is red-over-yellow-over-red—Medium-Approach, Standard Code Rule 286. In this instance, the approach signal displays the yellow-over-green, Approach-Medium aspect, Rule 282. Thus the engineman of an approaching train has information which permits him to bring his train up to and through the No. 18 turnout at the speed for which the turnout is designed, rather than entering at restricted speed, prepared to stop short of trains or obstruction.

The sidings are longer than the average length of freight trains, so that trains can be brought to a stop from medium speed before reaching the leaving ends. Thus, the No. 18 turnouts, together with the signaling arrangement, save considerable time for trains when entering sidings.

If a second train in the same direction is to enter an occupied siding, the aspect is red-over-red-over-yellow. Restricting, Rule 290. No signal can be displayed for a train to enter a siding if a train of an opposing di-

rection is already occupying it, or if a signal for an opposing movement is displayed. If such a move must be made in an emergency, special instructions are required.

Since trains operate on sidings and pull out of sidings at medium speeds, it is important that the leave-siding signals display aspects which can be seen plainly by enginemen at a coniderable distance in all kinds of weather. In winter, snow frequently obstructs dwarf signals. The Nickel Plate, therefore, has adopted high signals rather than dwarfs for leave-siding signals, and these high signals display apects helpful in expediting trains. In each instance, the leave-siding signal is on a bracket mast with the main-track station leaving signal. For example, as shown in one of the illustrations, the mast is to the right of the siding so that the main-track signal is on the left and the leave-siding signal is at the right. The leave-siding signal has the equivalent of three "arms," the top one and the bottom one being represented by red marker units. The middle "arm" is a two-lamp head which is normally dark, but which can display either green or yellow. The Medium-Clear aspect, Rule 283, red-over-green-over-red, indicates Proceed — medium speed within interlocking limits. It is displayed when the signal is lever-controlled and two or more automatic blocks ahead are unoccupied, permitting a train to be accelerated to maximum authorized speed as soon as it has cleared the turnout.

The Medium-Approach aspect, Rule 286, red-over-yellow-over-red, indicates Proceed at medium speed prepared to stop at next signal. This aspect is displayed when the signal is lever-controlled with the first automatic block unoccupied, but with the second block occupied by a train of the same direction.

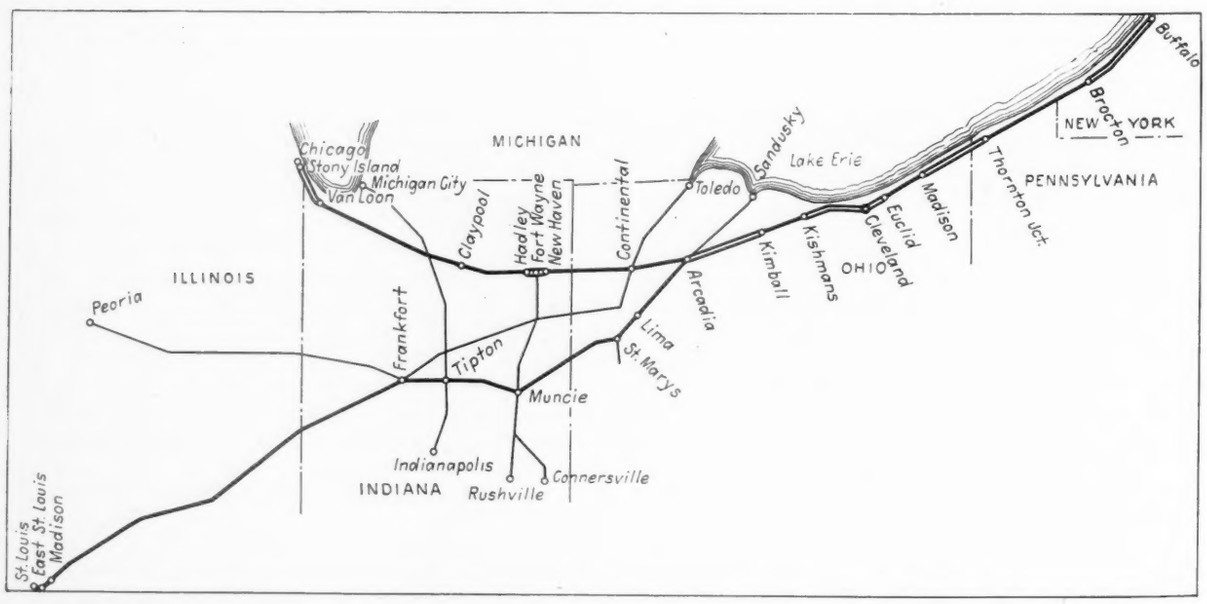
The Restricting aspect, Rule 290, red in the top arm, yellow in the bottom arm, indicates proceed at restricted speed prepared to stop short of train or obstruction. This aspect is displayed when a leave-siding signal is lever-controlled and the automatic block ahead is occupied by a train of the same direction. This aspect is used only at points where it is desired to allow a train, which is waiting on a siding for a train of the same direction to pass, to get under way while the leading train is receding in the first automatic block. This facilitates local switching or station work.

Flashing-Red Aspect

In the yard areas through Lima, there are numerous switching moves which require the switch engines to make movements on the main track. When a road train is to be moved through the yard territory, standard code aspects are displayed on the various home signals for the desired train movements. For such movements the tracks must be clear of trains and the switches properly lined. At other times the dispatcher in charge of the C.T.C. control machine can display "Flashing Red" or "Switching" aspect on certain home signals to permit engines to make the necessary movements past these signals to shift cars, or to change engines and cabooses on standing road trains which are serviced at the terminal. Road trains are not authorized to accept this aspect either to enter or depart from the yard territory.

To clear the main track through the yard for a road train movement, the "Switching" aspects are changed to Red-Stop; a siren is sounded, notifying all yard movements to clear the main track and yard leads; and, after a time delay, if main tracks have been cleared and switches positioned, the proper aspects for road train movements can be displayed. In this way through train movements are protected and yard movers are not delayed unnecessarily.

This centralized traffic control project was constructed under the direction of S. C. Raber, signal engineer.



The Nickel Plate has long stretches of main-line single track (heavy lines on the map)

Color serves a definite purpose—to distinguish potential accident hazards—in New York Transit System shops

COLOR'S Cash Value

By FABER BIRREN
Industrial Color Consultant

Application of a color code, plus safety training, produces savings estimated at $500,000 a year on New York Transit System

A few years ago color was brought into industry to perform a number of functional tasks. Lighting was to be improved, eyestrain relieved. A better working environment was to increase production, promote better labor relations, reduce absenteeism and accident frequencies. Probably much has been accomplished. This, however, is not always easy to determine. Production and morale are difficult to measure.

Yet there is a rather sure check on the value of color, in the field of safety and the objective record of accident frequencies. Hence the story of color as applied to the shops of the New York City Transit System may be accepted as a fair and reasonable evaluation.

In 1946 an exhaustive study was made of the facilities, equipment, machines, operations and accident hazards of all shops. From this analysis a standard color code for safety practice was developed:

Yellow—for so-called strike-against, stumbling and falling hazards, crane hooks, projections, car stanchions, pit edges.
Orange—for dangerous parts of cutting and forming devices, exposed rails and wires.
Blue—for equipment cut down for repair, switch boxes and controls in general.
Green—for first aid cabinets, stretchers, gas masks.
Red—reserved exclusively for fire protection.

This selection respects established traditions, but has been scientifically checked to make allowance for color blindness. The most vital colors, yellow, orange and blue, were all found to be readily distinguishable by the average color-blind person. The code was published by DuPont in 1944, and later adopted in substantial part by the American Standards Association. It has been broadly applied by industry.

The program of the New York Transit System was put into effect in early 1946. So that its benefits might be quickly applied, union permission was granted to let the workers themselves wield paint brushes. Men familiar with special equipment and machines, and with shop hazards, became painters. Within a short period all shops had been thoroughly rehabilitated. The work was carefully checked to assure consistency.

With the color plan, the safety department also initiated a supervisory training program. Foremen, assistant foremen and supervisors are given a 10-week course in safety practice. Two-hour classes are conducted for which the men are paid and for which they receive a certificate. A course in first aid, designed to train all employees, has also been undertaken.

That use of color and proper safety training will pay real dividends may now be dramatically stated from the experiment. Accidents in the shops of the system began to fall off at once. Eighteen months after introduction of the color code they had dropped 42.3 per cent—equivalent to an annual saving in excess of $500,000.

The accident problem, of course, is not to be solved by color alone. It is no substitute for physical guards, or for training that forcibly impresses the right discipline upon the workers. But color does create visible symbols and reminders. Its brightness and appeal make any hazard a more or less cheerful thing to behold—one which has an emotional impact and therefore is not easy to forget. In the New York demonstration, the fact that color is used is apparent on sight. Because it has been placed in shops to distinguish hazards, not for decoration, it shouts no cries of "wolf." Where it catches the eye it does so with serious meaning.

Today safety instruction among supervisors and workers has taken on greater significance, thanks to color. Management may see what has gone into the price of a coat of paint. It may likewise study its accident-frequency reports and calculate savings. For through color a splendid contribution can be made to business economy and to improve industrial and human relations.

The eastbound "Powhatan Arrow" on the new line between Plum Run, Ohio, and Peebles. At the right is the relocated highway

Line Change Boosts Train

Important benefits in operation of westbound freight trains are realized by Norfolk & Western from project in Ohio establishing better grades and alinement

A line-relocation and grade-reduction project on Beaver Pond hill, near Peebles, Ohio, on its line between Portsmouth, Ohio, and Cincinnati, has enabled the Norfolk & Western to handle an additional 1,600 tons on westward freight trains in this territory.

The ruling grade, westbound, on this line is approximately 1.4 per cent on a 4-mi. section located between Lawshe and Seaman. This grade is a few miles west of Beaver Pond hill. The tonnage rating westward on the Lawshe-Seaman grade for the road's Class Y-5 or Y-6 compound locomotives is 3,100 tons and, by doubling this hill, twice the single rating, or 6,200 tons, could be handled. However, the grade on Beaver Pond hill, a few miles to the east, restricted single-engine tonnage to 4,600 tons.

Since the completion of the Beaver Pond grade-reduction project, which cost approximately $2,800,000, westward tonnage trains can handle 6,200 tons over this hill, an increase of 1,600 tons per train, or 34.8 per cent, directly up to the ruling grade between Lawshe and Seaman, where they can now be doubled over the grade in 3,100-ton units. This is a highly favorable situation since the greater part of the freight handled westbound is bituminous coal moving in extra trains loaded to full locomotive capacity.

Manifest Time Reduced

While the reduced grade resulted in no increase in the tonnage handled in manifest trains, the time required by these trains to run from Portsmouth to Cincinnati was reduced. The performance of westward passenger trains was also improved.

This project was carried out between Mineral Springs, 26.4 mi. west of Portsmouth, and Peebles, 8.1 mi. farther west. The grade of the old line between these points ascended to the west and varied up to 1.142 per cent. By contrast, the new line has a maximum grade of

Cedar Fork viaduct, 705 ft. 8 in. long, is the largest bridge on the new line

Loads One-Third

The latest types of earth-moving equipment were employed in carrying out the relocation project

only 0.52 per cent, compensated for curvature. The old line also had a total of 22 curves, 9 of which were 4-deg. or greater, while the new line has only 12 curves, none of which is greater than 2 deg.

Constructed 4.6 Mi. of New Line

It will be noted on the accompanying map that the relocation involved the construction of an entirely new line, 4.6 mi. in length, which sweeps in a wide arc, north of the old route, between Mineral Springs and a point known as Plum Run. The remainder of the work, west of Plum Run and east of Mineral Springs, consisted, in the main, of relocating the track to a new alinement close to, and practically parallel with, the former alinement. Directly at Plum Run, the new and old lines coincide in both location and elevation for a short distance.

Upon completion of the work, the section of the old line between Plum Run and Peebles, 2.4 mi., was retired, as was the section of old line east of Mineral Springs—0.9 mi. The remainder of the old line, extending between Mineral Springs and Plum Run, was retained in service and now functions as a secondary track, being used largely by eastward freight trains.

Left—Construction of the new line of railway involved a number of cuts and fills, with the total earthwork for this phase of the project amounting to 687,000 cu. yd.

Facing page—Grading at a point where the old and new routes were immediately adjacent

Bridge structures on the relocated railroad include a 705-ft. 8-in. deck-girder viaduct which carries the line across Cedar Fork creek, and a 366-ft. 1-in. deck-girder bridge over Scioto Brush creek just east of Mineral Springs. At Peebles, a concrete overpass was built to carry Nixon avenue over the track.

In addition to the relocation of the railroad, this project also involved the relocation of two stretches of state highway, totaling 12,000 ft., and the construction of a 1,100-ft. connection between a county road and one of the stretches of relocated highway. Other work included two changes in the channel of a stream to avoid bridges on the new line and, also, two structures on the relocated highway.

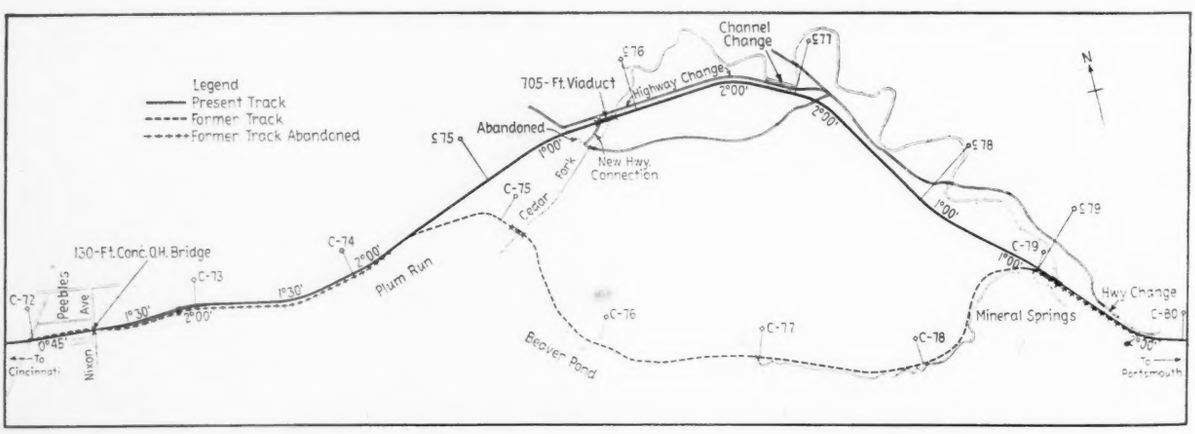
Moved 834,700 Cu. Yd. of Material

While the terrain in this section of Ohio is not mountainous, it is sufficiently rolling to have required the removal of 687.000 cu. yd. of material in the railway improvement, 104,000 cu. yd. in the highway relocation, and 43,700 cu. yd. in the channel changes.

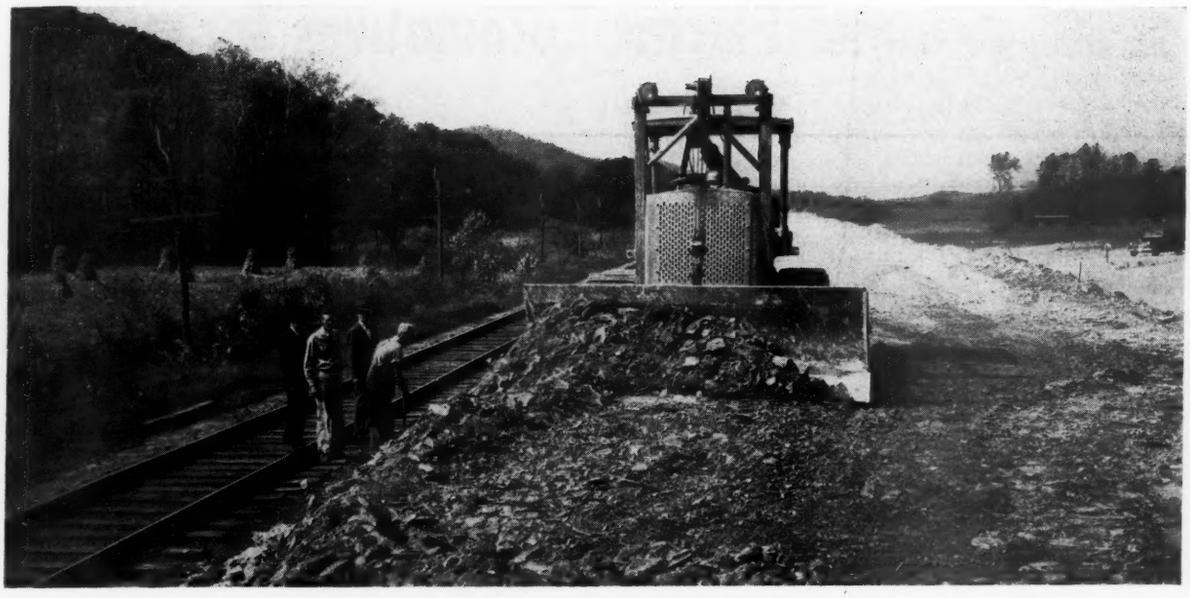
Sturm & Dillard Construction Co., Columbus, Ohio, held the grading contract for the entire project and employed some of the latest types of earth-moving equipment, including power shovels, bulldozers, scrapers, and large-capacity side-dump wagons, hauled by high-speed tractors. The material handled included a considerable amount of rock, much of which was fairly hard shale or limestone.

Specifications for the new line called for a 32-ft. width of roadway on the fills and 38 ft. in cuts. Where necessary, in the section between Mineral Springs and Plum Run, surplus excavation was wasted along the sides of adjacent fills, but outside of these limits, where the new and old lines were close together, the surplus material was loaded into dump cars, supplied by the railroad, and hauled to suitable disposal points.

The earthwork proceeded without special incident, except at one location where a pocket of blue clay of



This map shows the location of the old and new lines between Mineral Springs, Ohio, and Peebles



considerable length was encountered in a long cut. This unstable material was entirely removed and was replaced with broken stone.

Fills on the new line were built up in eight-inch layers and were compacted by the movement of the hauling equipment. The highest fill in the project rises 50 ft. above the surrounding ground level and is approximately 1,200 ft. long. The heaviest cut has a maximum depth of 90 ft. and is 2,000 ft. long.

The single track on the new line was laid directly on the subgrade and was then raised on 30 in. of cinders, brought in by work train. The cinder ballast was then shaped with a Jordan spreader to the required standard. Next season it is planned to raise the track on a 12-in. layer of washed gravel. Track specifications called for 24 treated ties per 39 ft. of track, 131-lb. rail, heavy-service tie plates, and 16 Fair rail anchors per rail.

Details of Bridge Construction

The deck-girder bridge over Scioto Brush creek, east of Mineral Springs, has 6 spans, each 60 ft. to 62 ft. long, aggregrating 336 ft. 1 in. This structure is directly north of a bridge on the old line, and is approximately 12 ft. higher. The girders are supported on monolithic concrete piers, while the abutments are of the "elephant ear," or spill-around, type.

The steel viaduct over Cedar Fork creek is the largest structure in the project, being 705 ft. 8 in. long and 65 ft. above the stream bed. It has seven spans 60 ft. long, and one span 75 ft. long, alternating with seven 30-ft. tower spans, all of the deck-girder type. The tower legs are supported on concrete pedestals, carried down to rock, while the abutments, like those of the bridge at Scioto Brush creek, are of the spill-around type. The steel superstructures of both structures were fabricated and erected by the American Bridge Company, Pittsburgh, Pa.

The new concrete overpass at Peebles, to eliminate a former grade crossing of Nixon avenue, is a three-span structure, 130 ft. in length, providing a 24-ft. roadway for vehicular traffic. Approximately 800 cu. yd. of concrete were required for this bridge.

Considerable Highway Work

Highway and stream relocations were important parts of the project. The highway phase involved approximately 13,000 lin. ft. of grading and the handling of about 104,000 cu. yd. of material. The largest item of this work was the relocation of 9,900 ft. of a state route, carrying considerable traffic, to avoid two grade crossings of the new line of the railroad. This relocation, in turn, required the construction of a new access road, 1,100 ft. long, to serve persons living along the old highway. To avoid crossing the new railroad at grade, this connection passes under the new Cedar Fork viaduct. Another highway relocation, 2,200 ft. in length, was carried out east of Mineral Springs.

Fills for the highway work have side slopes considerably flatter than those of the railway embankments, varying between 1½ to 1 and 3 to 1—the latter applying on all fills less than 5 ft. high. These fills were put down in eight-inch layers and compacted with a sheepsfoot roller. Following a period for settlement, a six-inch base course of broken stone was applied to the roadway. Completion of the pavement will be done by the highway department.

Masonry work on the entire project, including the highway bridges, was performed by B. F. Parrott & Co., Roanoke, Va. This work included a total of 2,689 cu. yd. of concrete.

This relocation project was carried to completion under the general direction of A. B. Stone, chief engineer of the N. & W., and W. L. Young, assistant chief engineer, both with headquarters at Roanoke. The late W. H. Bettis, assistant engineer, Portsmouth, was in direct charge of the work, assisted by E. B. Wimbish, resident engineer.

Electric Locomotives for 50-Cycle

The "S.N.C.F." (Societe Nationale des Chemin de Fer Francais), which is the operating agency of the French government for the railways in France, has adopted 1,500 volts d.c. as its standard for the electrification of main heavy traffic lines, using an overhead catenary contact system. A number of routes are already in operation with electric locomotives and multiple-unit-motor cars at this voltage, and work is currently progressing on the Paris-Lyons-Marseille route which also will be operated with this voltage. Power is supplied from the national 50-cycle, three-phase a.c. power network through converter or rectifier stations.

To electrify secondary or light traffic lines more economically, S.N.C.F. has been studying, during the past two or three years, the possibility of utilizing an overhead contact system containing considerably less copper, operated from a 20-kv., 50-cycle, single-phase a.c. contact system, supplied directly from the three-phase a.c. power network through transformer stations. During the past year, experimental work on motive power design has progressed to the extent that recently the S.N.C.F. has placed orders for three experimental electric locomotives which will be tested to determine the best design for future motive power of this type, to operate on 20-kv., 50-cycle, single-phase a.c. The contact line design and construction will present no new engineering problems, other than increased insulation and clearances, but the proposed new locomotives will have unusual features of interest to electrical engineers and locomotive designers.

In order that the proposed new locomotives may be tested under the most difficult operating conditions in which they will be expected to perform, they are to be designed to operate not only under the 20-kv., a.c. contact wire, but into the adjacent 1,500 volt d.c. territory as well. They will be sufficiently powerful to start and haul trailing train loads of 1,000 metric tons on 0.8 per cent grades at 50 km. per hr. (31 m.p.h.) and 500 metric tons, trailing, on grades of 2.5 per cent. To operate over the average track used on these light-traffic lines, the axle loadings must not exceed 19 metric tons per axle. They will also have electric braking.

Commutator Motors with Regeneration

The electrical equipment for the first of these experimental locomotives is being designed and built by the "Ateliers de Construction Oerlikon," Switzerland. The mechanical parts are being designed and built by the "Societe Suisse de Construction Winthertur," Switzerland.

The locomotive will be of the C-C type (two trucks having three driving axles each), and is expected to have a nominal speed of 90 km. per hr. (56 m.p.h.) with maximum permissible speed of 100 km. per hr. (62 m.p.h.). The total weight will be 110 metric tons (18.3 metric tons per axle), divided as follows: Electrical equipment—47.5 metric tons; and mechanical equipment (including tools and sand)—62.5 metric tons.

The one-hour rating (at the axle) will be 3,800 hp., and it will be equipped with 6 single-phase commutator type motors, one per axle, entirely spring suspended within the truck frame, each having a one-hour rating (at the axle) of 463 kw. Ratings of such high values have been attained in the past only with a.c. motors operating on frequencies lower than 50 cycles.

Operation on 1,500 volts d.c. at reduced rating and speeds, but with full tractive force, will be obtained by means of a converter set which will change the 1,500-volt d.c. to a.c. power at approximately 30 cycles, without any additional speed control equipment. This locomotive will have regenerative braking.

The second of the experimental locomotives will have both its electrical and mechanical parts designed and built by the "Societe General de Constructions Electriques et Mecaniques Alsthom," France. This also will be of the C-C type (two trucks with three driving axles each) and will have a speed of 100 km. per hr. (62 m.p.h.).

The total weight will be 114 metric tons, of which 57.12 metric tons will be the electrical equipment and 56.88 tons will be the mechanical parts, including tools and sand.

The one-hour rating of this locomotive will be 3,600 hp. (at the axle) and it will be equipped with 6 single-phase twin motors of the commutator type, entirely spring suspended within the truck frame, each having a one-hour rating of 445 kw. at the axle.

Sets Perform Dual Function

The use of twin motors, and the slightly lower rating as compared with the Oerlikon design, is because this is the first single-phase locomotive designed and built by the Alsthom company, and it has voluntarily adopted a very conservative design with the full consent of the S.N.C.F.

Operation on 1,500 volts d.c. will be at reduced ratings and speeds, but with full tractive force, and will be obtained through a motor-generator unit converting the 1,500-volt d.c. power into direct current at a lower voltage suitable for supplying the traction motors. This locomotive also will be equipped with regenerative braking.

The third experimental locomotive is being designed and furnished by "Le Materiel de Traction Electrique," France, which has called upon the "Materiel Electrique S.W." France to build the electrical equipment, and "Schneider et Cie," France, to build the mechanical parts. This locomotive will be of the B-B-B type

Contact Systems

(three trucks each having two driving axles) and will have a speed of 100 km. per hr. (62 m.p.h.).

The weight of this locomotive will be 114 metric tons, of which the electrical equipment will be 49.63 metric tons, and the mechanical parts, with tools and sand, 64.37 metric tons. The one-hour rating will be 3,300 hp. at the axle. The motors will be the d.c. series type with one per axle, having a one-hour rating of 465 kw. each. These are not specially designed for this locomotive, being of a type already developed and in use on d.c. locomotives. The one-hour rating of this locomotive is, for this reason, not determined by the motors, but by the capacity of the converter unit which supplies the power to them. This unit includes a 50-cycle asynchronous motors directly coupled to the group d.c. generators.

Speed regulation is obtained by varying the voltage of the converter generators by field control, and by modifying their coupling to the motors (series-parallel). The transformer supplying the asynchronous motor will have taps to compensate for contact line voltage drop.

This locomotive will be able to operate at full rating and speed under the 1,500-volt d.c. contact wire as well as on the 20-kv. single-phase 50-cycle a.c. contact system. For operation on direct current, the main problem is to start this locomotive and bring it up to speed without the use of special resistance and contactor equipment. The designers have accomplished this by using the generators of the motor-generator set as voltage raising or lowering regulators, to bring the traction motors gradually up to their full voltage. The motor-generator design of this locomotive permits regenerative electric braking.

Axle Loadings

The utilization program, and the load limitation of 19 metric tons per axle, were the principal reasons which caused all three manufacturers to offer locomotives with 6 driving axles and with all weight on drivers, making a total weight of 114 metric tons. The weight has been kept within this limit, even though additional equipment has been necessary in two of the locomotives for operation on the 1,500-volt d.c. contact system as well as on the 50-cycle a.c. contact system. This has been accomplished by reducing the weight of rotating parts to the minimum allowed by recent design technique.

There are indications that a 50-cycle, single-phase locomotive can be built lighter in weight than any of these experimental types for application to definite operating conditions. On this basis, the Swiss manufacturers already have designed a 50-cycle single-phase locomotive of the B-B type, weighing 68 metric tons, having a one-hour rating of 2,500 hp., equipped with single-phase motors.

NEW BOOK . . .

ON TIME, by Franklin M. Reck. 184 pages. Bound in cloth. Published by Electro-Motive Division of General Motors Corporation, La Grange, Ill. (Limited distribution only; already made. Not for sale. Copies have been sent to major city libraries.)

There are important men in the official family of the Electro-Motive Division of General Motors Corporation who can recall when their company had no plant at all. It was only "yesterday" that the men of Electro-Motive were scattered over the country, assembling, selling and servicing rail-motor cars, with only one woman secretary to tie the organization together with letters, telegrams and long-distance calls. One of them recalls that at the start in 1922. H. L. Hamilton, founder of the company, advertised for a stenographer for his small Cleveland office. A girl answered his want ad, and was put to work immediately. Hamilton dictated a half-dozen letters, then put on his hat, saying that he would be back at two o'clock. As John Barhyd, then a draftsman and now an officer of E.M.D. recalls, in this new history of the Electro-Motive:

"Anyhow, there we were, me at a drafting board and this girl typing letters, nobody coming in or out—no telephone calls, no activity of any kind. Here were these few offices with hardly any furniture, not even a picture on the walls. A dead-looking outfit if there ever was one. The girl finished the letters, laid 'em on Hamilton's desk, then went to the halltree for her hat.

'I'm quitting,' she says.

I ask her why, and she replies: 'I've seen these fly-by-night companies before and I don't want any part of them.'

'You better wait till Mr. Hamilton comes back. You've got half a day's pay coming to you,' I told her, but she shook her head.

'He can keep the money,' she replied. 'He'll need it.' She walked out and I never saw her again.

In such manner did the country's largest builder of Diesel locomotives have its start. In an easy-going, interesting way, Franklin M. Reck tells in this book the fascinating story of the battle of science, organization and salesmanship which Mr. Hamilton and his devoted group of associates waged to produce a locomotive suitable for heavy-duty service on the American railroads in competition with the steam locomotive, and then to sell it to an industry which frequently is accused of being skeptical of developments offered by people outside the field.

DIESELS CUT SHORTLINE'S TRANSPORTATION COSTS

New power on the Savannah & Atlanta permits material savings in operating expenses

Early in 1948, as the result of careful studies made as to possible reductions in operating costs, the Savannah & Atlanta purchased eight new Diesel-electric locomotives. These are of the 1,500-hp. road-switcher type, manufactured by the Baldwin Locomotive Works with Westinghouse electrical equipment. The original studies indicated that the locomotives could be made to pay for themselves in nine years; actual experience has shown that this was a conservative estimate and the figure is being considerably bettered.

The first of the units were received in May last year and all eight were in service by July 1. There was an immediate reduction in the transportation ratio, which, in a few months, showed a decrease of more than 20 per cent as compared with the figures produced under steam operation. In November, 1948, for example, the transportation ratio, as compared with November, 1947, showed a decrease of 23.4 per cent, which has been approximately the average decrease since, compared with the same month of the previous year under steam operation. One of the important factors involved in this decrease in transportation ratio was the increase in gross ton-miles per train-mile (excluding locomotive and tender) under Diesel operation. This factor has shown a consistent increase as compared with steam operation; the figures for November, 1948, for example, were 1,705 gross ton-miles per train-mile as compared with 1,407 in November, 1947; 24 fewer trains were operated notwithstanding a slight increase in total gross tons handled. Significant, too, are the large decreases in fuel costs; in November, 1947, $9,416 was spent for fuel for locomotives in through freight road service, as compared with $3,239 in November, 1948, while for all service for the same months, including local freight and yard switching, the figures were $19,024 and $8,019, respectively.

An Unusual Railroad

These figures were attained without a particularly high utilization percentage of mileage accumulated; the units have averaged just over 4,600 miles per month each since the new operating methods were adopted. Since the S. & A. is a short line, extending 145 miles between Savannah, Ga., and Camak, the utilization and mileage figures are good, but not particularly startling ones such as are obtained by the operation of Diesels over one or more divisions on longer lines.

Although the S. & A. is much the shortest of the five railways entering Savannah, by far the majority of the large industries of that city and port are local on its property—most of them served by a hook-shaped belt line owned by the S. & A. In addition, it has joint access to nearly all of the remaining large industries. With such a territory, it originates or terminates 90 per cent of the total business it handles, which, in 1948, amounted to 2,122,000 tons. A large proportion of the industries it serves are situated in an area known as Port Wentworth. These industries include manufacturers of gypsum, resin, prepared roofing, pulpboard and sugar, as well as asphalt and oil refineries. Chatham-Air Force Base which was reactivated in the past few months, is also local on the line of the S. & A.

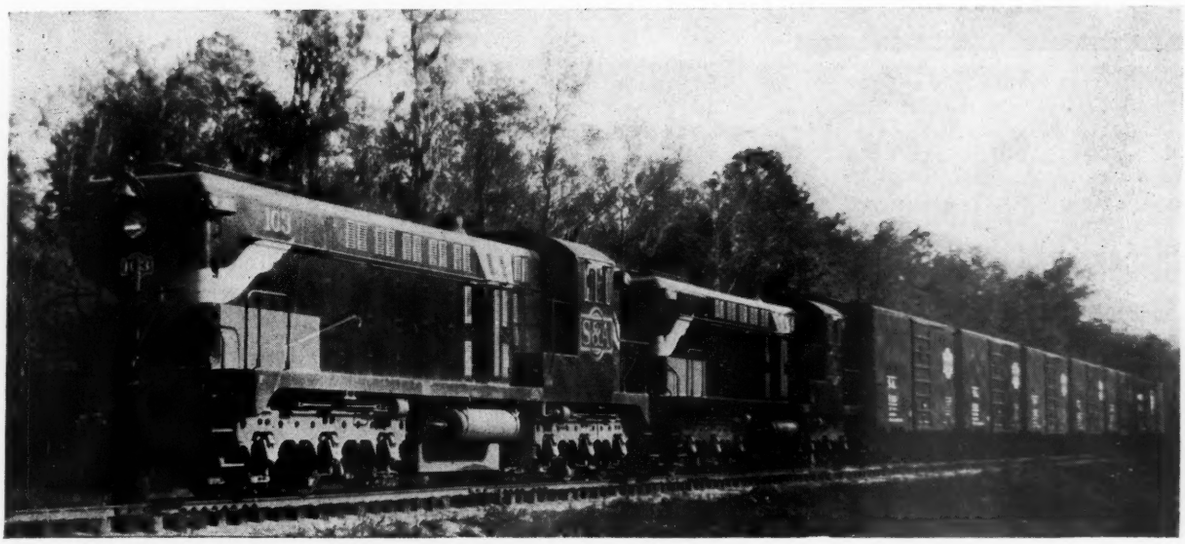
The S. & A. interchanges freight with the other four lines serving Savannah (Atlantic Coast Line, Seaboard Air Line, Southern and Central of Georgia); and at Waynesboro, with the C. of Ga.; at Torbit with the Georgia & Florida, and with the Georgia at Camak, its western terminus.

New Operating Methods

A regularly scheduled through freight is run in each direction between Camak and Savannah each night, and a mixed train is run daily except Sunday. The eight Diesel units are used indiscriminately in yard and road service and there is no utilization problem at Savannah, where the switching is heavy enough to require the services of any of the Diesel units that may have lay-over time there between line hauls. Two units are operated on the through freight trains. Upon arrival at Camak, one of these units returns within an hour pulling the mixed day train, while the other lays over and is coupled with the unit arriving in the afternoon on the westbound mixed train to protect the two-unit operation of the eastbound through freight. Thus, although there is considerable dead time daily for one unit at Camak which is unavoidable, a creditable utilization is obtained.

A westbound grade of one per cent for 1.75 miles in the vicinity of Millhaven was a limiting factor under steam operation, requiring the running of extras during periods of heavy business. This grade still limits the westbound tonnage, of course, even under Diesel operation, but, since the tonnage that can be handled westbound with two units is now 3,000 tons, as compared with 2,200 tons with steam locomotives, far fewer extra trains are now necessary. Eastbound, two Diesels handle trains of 3,750 tons, as compared with 3,000 tons under steam operation.

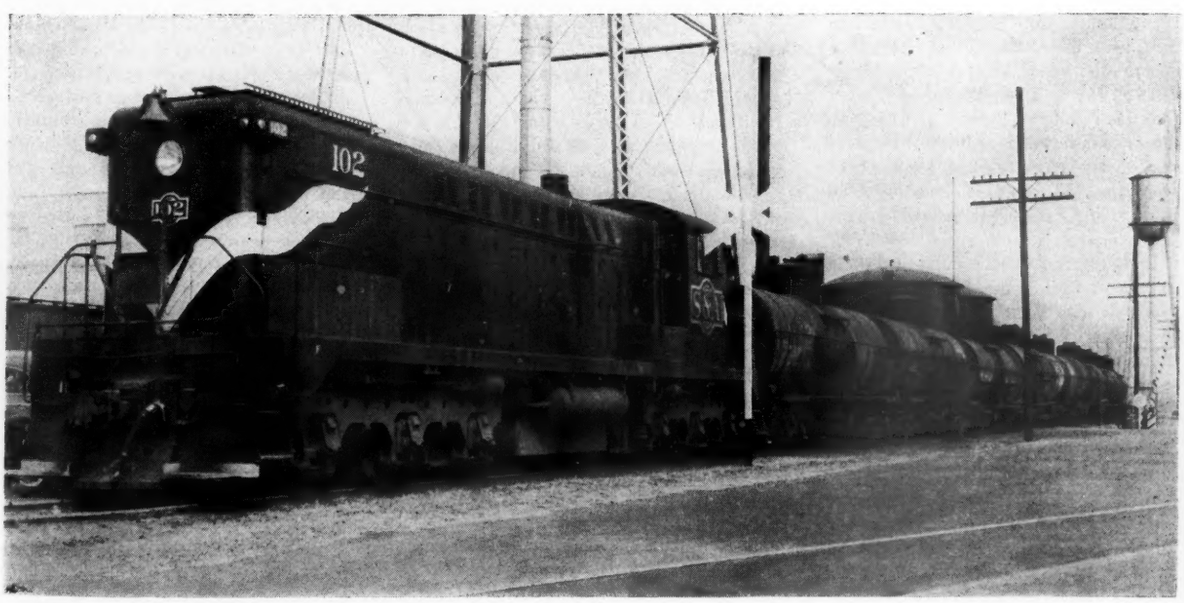
The steam locomotives previously operated by the S. & A. were all over 25 years old, and their maintenance cost was correspondingly high. In the last year of steam operation, for example, there was a veritable epidemic of boiler defects of one sort or another that



Two Diesel units are used in through freight service

required extensive shopping for repairs. All mechanical work is handled in the S. & A. shop at Savannah, which is a well-constructed brick building 72 ft. wide by 240 ft. long with adjoining storeroom 60 ft. wide by 120 ft. long. At present, all Diesel repairs are being handled in one end of this building that is set aside for the purpose, but a blacksmith shop immediately adjacent to the main shop is being converted into a modern Diesel repair facility, which will be equipped with an overhead crane, air jacks and pits, and is designed for prompt handling of Diesel repairs when completed. It will be 100 ft. long by 60 ft. wide. A modern Diesel fueling and oil storage station already has been installed.

The S. & A. is now in the process of being rock-ballasted throughout and some 10 per cent of this work has been completed. As fast as 90-lb. rail can be obtained from the mills, it is being laid to replace the remaining 70-lb. rail now in the track. The southern third of the line is in the Savannah River valley and is virtually flat. The northern third is located along a ridge with a favorable grade line throughout. Since the central third crosses a series of tributaries to the Savannah river, as well as the ridges between, its grade line is broken and there are numerous curves. Some work has been done already to improve the railway in this section, but an ambitious program of grade and curvature reduction, involving a relocation of the line in one instance, is expected to get under way about the end of this year.



A variety of industries are served at Savannah

Shows How '47 Traffic Paid Overhead Costs

"Manufactures and Miscellaneous" bore 62.7 per cent of "burden"

Traffic of the Manufactures and Miscellaneous group bore 62.7 per cent of the railroads' "overhead burden" in 1947, when such traffic accounted for 34.9 per cent of the revenue ton-miles of all carload freight, according to a study made by the Cost Section of the Interstate Commerce Commission's Bureau of Accounts. As to the other commodity groups, the study showed the following percentages, respectively, of the 1947 overhead burden borne and of the 1947 revenue ton-miles accounted for: Products of Mines, 22.4 per cent and 38.3 per cent; Products of Agriculture, 9.3 per cent and 16.5 per cent; Products of Forests, 4.9 per cent and 7.7 per cent; Animals and Products, 0.7 per cent and 2.6 per cent.

The study, entitled Distribution of the Rail Overhead Burden by Commodity Groups--1939 and 1947, is Statement No. 2—49. It carries the usual disclaimer to the effect that it was issued "as information," and "has not been considered or adopted" by the commission. The objective of the study, as its introduction puts it, "is to indicate generally the distribution of the overhead burden among the major commodity groups and the shifts in such burden, if any, occurring between the prewar year 1939 and the postwar year 1947, the latter being the latest annual period for which the necessary statistical data are available."

"Overhead burden" was defined as "the carriers' revenue requirements over and above the earnings needed to cover the out-of-pocket costs of handling the carload traffic, the less-carload traffic, and the passenger and allied services." Thus included were the constant or fixed costs present in rail operations, the out-of-pocket deficits incurred in the handling of the less-carload and passenger services, and an allowance for a 4 per cent return on the commission's valuation of railroad properties. The cost figures were taken from the bureau's basic cost studies.

Costs and Revenues

The out-of-pocket costs for the five carload commodity groups were computed at $1,817 million in 1939 and $4,867 million in 1947. The carload revenues exceeded these out-of-pocket costs by $1,307 million in 1939 and by $2,020 million in 1947. The contribution to the overhead burden in 1939 was put at 94 per cent of that burden, which for that year was computed to be $1,389 million. The 1947 contribution was put at 99 per cent, the overhead burden for that year having been computed to be $2,043 million. Of the $2,020 million by which the 1947 revenues exceeded out-of-pocket costs, the excess on traffic of the Manufactures and Miscellaneous group accounted for $1,267 million. The range of excess amounts in other groups was from $453 million for Products of Mines to $15 million for Animals and Products.

The figures on proportions of the 1947 overhead burden borne by traffic in the various groups, as given above, are compared with like figures for 1939 in Table I. As the bureau interpreted them, the figures in this table "indicate that the share of the overhead burden borne by Products of Agriculture, Animals and Products, Products of Mines, and Products of Forests, is relatively low in comparison with the proportion of the total revenues, revenue ton-miles, and out-of-pocket costs accounted for by these groups." On the other hand, the statement added, the share of the burden borne by Manufactures and Miscellaneous was "relatively high."

Other data set out in the study showed ratios of the revenues to out-of-pocket costs by the commodity groups. The range of such ratios for 1947 was from 165 per cent for the Manufactures and Miscellaneous group to 106 per cent for Animals and Products. The 1939 range, the same groups having been in the extreme positions, was from 203 per cent to 125 per cent. Still another comparison related each group's actual contribution to the overhead burden to its "share" of that burden as distributed on the basis of a revenue ton and ton-mile apportionment. The 1947 figures there showed that the revenues of the Manufactures and Miscellaneous group amounted to 187 per cent of the group's apportioned burden, while the ratio for all other groups was less than 100. The range for these other groups was from 65 per cent for Products of Forests to 31 per cent for Animals and Products.

Value of Service

Comparisons on a mills-per-ton-mile basis are shown in Table II. Of these and the foregoing figures, the bureau had the following to say: "If all differences in rates were limited to the differences in the out-of-pocket costs (i.e., differential charging were absent), all the commodity groups would make an equal contribution per revenue unit to the overhead burden. In such case the percentage which the respective contributions bear to a ton and ton-mile apportionment of the burden . . . would be

Table I—Percentage Distribution of Revenues, Ton-Miles, Out-of-Pocket Costs, and Contribution to Overhead Burden

Commodity Group	Revenues		Revenue Ton-Miles		Out-of-Pocket Costs		Contribution to Overhead Burden	
	1939	1947	1939	1947	1939	1947	1939	1947
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Prod. of Agri.	16.5	15.6	15.8	16.5	21.0	18.3	10.3	9.3
Animals & Prod.	5.3	4.1	3.3	2.6	7.3	5.4	2.5	0.7
Prod. of Mines	30.3	27.2	43.4	38.3	29.3	29.2	31.7	22.4
Prod. of Forests	6.6	6.6	7.8	7.7	7.4	7.4	5.5	4.9
Manuf. & Misc.	41.3	46.5	29.7	34.9	35.0	39.7	50.0	62.7
Total Carload	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table II—Comparison of the Contribution to the Overhead Burden in Mills Per Ton-Mile —1947

Commodity Group	Out-of-Pocket Cost Per Ton-Mile	Revenue Per Ton-Mile	Contribution to Overhead Burden	
			Amount Per Ton-Mile*	Percent of Total Carload Contribution
(1)	(2)	(3)	(4)	(5)
Prod. of Agri.	8.45	10.22	1.77	56
Animals & Prod.	15.55	16.44	0.89	28
Prod. of Mines	5.80	7.65	1.85	59
Prod. of Forests	7.30	9.30	2.00	63
Manuf. & Misc.	8.66	14.33	5.67	179
Total Carload	7.61	10.77	3.16	100

* Column (3) minus column (2).

identical for all commodity groups. Similarly, the contribution per revenue ton-mile . . . would be identical for all commodity groups. The fact that these ratios and ton-mile figures do differ by commodity groups indicates the extent to which non-cost factors, such as value of service, have entered into the making of rates."

Gass Replies to Charge Of Inefficient Operation

Files Ex Parte 168 statement to answer Department of Agriculture

When a member of the Department of Agriculture's staff undertook, in the Ex Parte 168 rate-increase proceeding, to show the Interstate Commerce Commission that the railroads were not being operated as efficiently as they might be, he employed data "burdened with error to such an extent as to make them unworthy of serious consideration by the commission," according to a verified statement which has been filed in the case by Arthur H. Gass, chairman of the Car Service Division, Association of American Railroads. This general characterization was applied by Mr. Gass to exhibits offered and explained in testimony by J. C. Winter, who is chief of the Transportation Facilities Division in the Marketing Facilities Branch of the department's Production and Marketing Administration.

Meanwhile, the C.S.D. chairman also addressed himself to the testimony of the department's transportation consultant—C. E. Childe, who was a member of the defunct Board of Investigation and Research. Mr. Childe's testimony was also designed to show that railroad efficiency had not reached the level claimed by carrier witnesses in the case. Among other comment, Mr. Gass noted that this witness had "frankly" stated on the record "that he had no practical experience in railroad operation." Messrs. Winter and Childe offered their testimony at the hearing held in Washington, D. C., last month.

In their petition in the case the railroads are seeking a permanent freight-rate increase of 13 per cent which would supplant the interim advance of 5.2 per cent which was approved by the commission in its report of December 29, 1948. Oral argument is scheduled to begin in Washington on May 16 before the entire commission and a cooperating committee of state commissioners. This oral argument will be preceded on May 13 by a hearing for the receipt of "rebuttal testimony only," the commission announced last week. That hearing will be before the commission's Division 2, consisting of Commissioners Aitchison, Splawn, and Alldredge, with Chairman Mahaffie designated as an additional member, and the cooperating state commissioners.

The Winter exhibits which Mr. Gass assailed were set up as compilations o the "actual records" of the movements of a large number of cars shipped by the department and private shippers o agricultural commodities. The compilations compared the transit times of the shipments with what Mr. Winter calculated should be the "normal" times if operations were as efficient as he thought they should be.

In his general comment on the exhibits' showing, Mr. Gass said that, in charging the alleged delays to the railroads, the witness ignored the fact that many delays occur while cars are in the hands of shippers. The "only practicable way" of discovering and correcting undue car detention, the C.S.D. chairman said in another place, is by on-the-ground checks. In that connection, he suggested it was of interest to note that "in checks in one of our districts of the actual handling accorded 47,388 cars on 31 railroads in 49 terminals in February of this year, only 366 cases were found of railroad delay."

As to that part of Mr. Winter's testimony which relied on the fact that the "active" freight cars made fewer miles per day in 1948 than 1947, Mr. Gass suggested that the carriers could not have "improved" that showing unless they did a bit of "railroading for the books." He put it this way: "It seems appropriate to call attention to the fact that in 1948 there were 1,688,286 less carloads of revenue freight loaded than in 1947, while there were, taking the witness' own figures, 334 more 'active' freight cars available in 1948 than in 1947. Assuming an equal length of haul, . . . it is difficult to see how the railroads could have increased the average car miles per active car day in 1948 unless they hauled loaded or empty cars back and forth, or over circuitous routes, in order to accomplish that result."

Meanwhile, the C.S.D. chairman had taken at random various transit-time records of cars listed in the Winter exhibits and compared them with railroad records on the same cars. Many discrepancies were thus turned up as to shipping dates, arrival dates, and other information. A summary of these checks of 1,528 cars showed that as to only 312 of them did the railroad record agree with that of the department on the date of receipt in final road haul at destination. Cars received one day earlier than the Winter exhibits had shown totaled 773; 267 were received two days earlier; 98, three days earlier; and 78, four or more days earlier.

Among other comment on Mr. Childe's testimony, Mr. Gass dealt with the former's contention that the railroads with present equipment should be able to handle somewhere between 70 million and 86 million revenue carloads annually. This contention assumed an over-all turn-around time for cars of 8 days as a minimum or 10 days as a maximum. Mr. Gass said that it also assumed static transportation conditions throughout the year, whereas actual conditions include seasonal fluctuations, the uneven flow of industrial production, interruptions by strikes, etc. Taking these and other factors into consideration, the C.S.D. chairman calculated that "on the basis of actual proved operations," the railroads, in 1947, could have handled 54,700,000 loads with the cars available at that time. The 1947 loadings totaled 44,500,000.

Johnson "Sure" Roads Will Block Car Program

Says unpreparedness will then be "their own fault"

Director J. Monroe Johnson of the Office of Defense Transportation said last week that he was "sure" the railroads will prevent his program for purchase by the federal government of 550,000 new freight cars from going into effect, and he added that "should war come and the railroads be unprepared, it will be their own fault." The O.D.T. director made this statement in a letter to President F. G. Gurley of the Atchison, Topeka & Santa Fe.

The letter, along with another to President Ralph Budd of the Chicago, Burlington & Quincy, was written by Colonel Johnson on April 12 after he had read, in the *Railway Age* of April 9 (page 66), a report of comment on the proposed car-building program, which the Chicago Tribune said it had received from Messrs. Gurley and Budd in response to queries. The program is that wherein the O.D.T. director is proposing that the government order 550,000 freight cars, for delivery at the rate of 15,000 cars per month, as "part of the armament" now being acquired under the national defense program. The program also contemplates purchase by the government, at scrap value, of all steam locomotives being retired by the railroads. (See *Railway Age* of April 2, page 49.)

Not Based on "Economy or Commerce"

Colonel Johnson's letter to Mr. Gurley summarized part of the Santa Fe president's quoted comment as having said "that there is no economic or commercial justification for my proposal that the United States government, in consonance with its multi-billion dollar armament program, stock-pile freight cars." That statement is "more than correct," the O.D.T. director said, adding "else I would be criticizing the railroads for not ordering cars."

"The only justification," he continued, "that can be had for this program, I stated clearly, i.e., that, if the United States government considers the war danger sufficiently serious and imminent to spend fifteen or more billions of dol-

lars a year on its armament and many billions more rehabilitating Europe and rearming it, it should know that the railroads could not take the overload as compared to the last war that such armament presumes—that merely against that contingency, there should be additional freight cars. My proposal is not based on economy or commerce."

The colonel went on to note that Mr. Gurley had been further quoted as having said that if the government has knowledge of an international situation, it should stock-pile basic metals. Of this, the O.D.T. director said: "I don't understand why you say 'if the government has knowledge.' The government is spending billions of dollars in preparation. This would not be done without knowledge. To stock-pile basic metals would not help the car situation in a crisis, for the basic metals would go to the armed services as before."

Colonel Johnson next said that he was also sending "confidentially" to Mr. Gurley a copy of a recent letter about the matter which he had written to Dr. John R. Steelman, assistant to President Truman and acting chairman of the National Security Resources Board. The O.D.T. director then closed his letter to the Santa Fe president with the statement that the railroads will prevent his program from going into effect and thus make unpreparedness "their own fault."

In his letter to Mr. Budd, Colonel Johnson referred first to that part of the Burlington president's quoted comment which said that if the federal government would cease the heavy subsidies to the railroads' competitors, the railroads would have more peacetime traffic and would be able to supply an ample number of cars. "The railroads," the O.D.T. director said, "have been talking that subject for a long time. You know that there will be no solution of that problem, with resulting prophesied recovery, in time for any proximate wartime emergency."

"You are," the colonel continued, "further quoted as saying that new rail is as important to the railroads as new freight cars, in which you are correct. However, the O.D.T. has been able to get more steel for new railroad cars and for repairs than it has been able to distribute against the car orders and for repairs. In addition, the O.D.T. has been able to secure 70,000 tons of steel rail over and above the then commitments and was able to distribute only 40,000 tons of steel rail. . . .

"Advance Preparation" Necessary

"You, above all, know that when the emergency occurs, you cannot get steel in competition with the armed forces. These preparations for railroads must be made well in advance. The number of cars now on ownership is less than during the war. To be saddled with a 10 to 15 per cent greater load than during the last war would result in nothing less than consternation."

The colonel also sent Mr. Budd a "confidential copy" of the letter he wrote recently to Dr. Steelman. "This," he told the Burlington president, "will enable you to appreciate what I have in mind as to the probable war load that the present scale of appropriation for military preparedness would entail."

Meanwhile, the Department of Commerce's Office of Industry Cooperation, which administers the voluntary programs for the allocation of steel, has announced substantial downward revisions of the allocations, the adjustments to become effective in July. For that month, a "provisional quantity" of 25,000 tons of steel products will be made available for freight cars. The O.I.C. announcement explained that this allocation is designed to provide for "unforeseen consumer needs." Originally, it had been recommended that the freight car program be suspended during July for lack of car orders. Because it was unable to distribute the steel allocated, the O.D.T. withdrew on April 15 from participation with O.I.C. in this car program.

N. Y. O. & W. to Ask Court For Abandonment Authority

Action announced as strike of operating employees halts trains

Trustees of the New York, Ontario & Western have announced that they will ask next week for court authority to apply to the Interstate Commerce Commission for permission to abandon the entire line, as a result of a strike of the road's approximately 500 operating employees, which brought the company's operations to a complete standstill as of 6 a.m., April 18.

The basis of the strike was the railroad's inability to pay the 10-cents-per-hour wage increase, retroactive to October 1, 1948, which was granted last fall to railroad operating employees generally. Trustees for the company, which has been in bankruptcy since 1937, have expressed themselves as being willing to pay the increase when and if earnings permit, and necessary court approval is obtained; but state that they cannot pay it without such court authority. A hearing on the question was held before Judge Edward A. Conger in the United States district court for the southern district of New York last December; in January the court disapproved the increase, on the ground that the company's earnings would not justify it, but without prejudice to a renewal of the application at any time that improved earnings warranted such procedure.

With the operating employees on strike —and most of the road's 1,300 other employees laid off in consequence — the trustees, Raymond L. Gebhardt and Ferdinand J. Sieghardt, have published in New York newspapers a legal notice stating that application will be made on April 27, or as soon as possible thereafter, to Judge Conger "for an order authorizing and permitting an application to be made to the Interstate Commerce Commission for abandonment of said railways [the N. Y. O. & W. and subsidiary and affiliated lines] and the operation thereof; and for such other and further relief as to the court may seem just and proper."

The striking employees, who include members of the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen & Enginemen, the Order of Railway Conductors and the Brotherhood of Railroad Trainmen, have refused arbitration, claiming that the company had agreed to the increase. A mediator for the National Mediation Board was unable to avert the strike. Frank P. Douglass, chairman of that board, has been quoted as saying that appointment of an emergency board, or any other federal action, is unlikely. In contrast to the carrier's position that it could not legally pay the wage increase without court approval, Mr. Douglass is quoted as having said: "There would be nothing for an emergency board to do. The only purpose of the board is to look into the issues and recommend a settlement. In this case the dispute was settled last fall, and it is only a question of the carrier's refusing to put it into effect."

The N. Y. O. & W., recently entirely Dieselized, operates between New York (Weehawken, N. J.) and Oswego, N. Y., with branches to Delhi, N. Y., Port Jervis, Monticello, Kingston, Utica and Rome, and to Scranton, Pa. As of December 31, 1948, it operated the following track mileage:

	First Main Track	Second Main, Industrial & Yard Track	Total
Owned	340.00	162.39	502.39
Leased	137.98	78 28	216.26
Trackage rights	65.65	68.89	134.54
Total	543.63	309.56	853.19

As reported in *Railway Age* of April 16, page 84, its operating revenues in 1948 were $7,957,497; its operating expenses $7,434,554; its fixed charges $1,493,565; and its net deficit after interest and taxes $2,333,736. The latter figure compared with a deficit of $2,855,700 in 1947. At the end of 1948 its current assets were $1,171,619; its current liabilities $6,562,507; and its long-term debt $39,058,707. Its investment in transportation property, less depreciation, at the end of 1948 was just under $78 million, and its cumulative deficit nearly $36 million. Its principal revenues are from coal and merchandise freight.

Emergency Board on A. & S.

President Truman on April 15 issued an executive order creating an emergency board to investigate a working-rules dispute between the Aliquippa & Southern and those of its employees who are represented by the Brotherhood of Railroad Trainmen. The order was issued after the union had posed a strike threat.

Stress Difficulty of Detecting Overheated Bearings on Diesels

Interstate Commerce Commission reports on three derailments, which resulted from overheated traction-motor bearings on Diesel-electric locomotives, have pointed up difficulties of detecting such conditions from road inspections of the "relatively inaccessible" bearings. The reports were by Commissioner Patterson, and one of them recommended that "consideration be given to the installation of devices which will give ample and timely warning of bearings which become overheated on line of road."

Passenger trains were involved in all three derailments, which occurred on the Seaboard Air Line at Bay Lake, Fla., on January 11; on the Chicago & North Western at Rock, Mich., on January 31; and on the Pennsylvania at Torrance, Pa., on March 15. The reports' formal findings were that the first two were caused by false flanges resulting from slid-flat driving wheels, and that the third was caused by a broken driving axle.

Report on the Seaboard

The Seaboard train was No. 46, the northbound "Orange Blossom Special," consisting of three Diesel-electric locomotive units, coupled in multiple-unit control, and 16 cars. It was traveling at a speed of 75 m.p.h. when the left rear wheel of the front truck and the rear truck of the second Diesel unit, the third unit, and the first 12 cars were derailed at the switch of an auxiliary track. The accident resulted in the death of one dining-car employee, and the injury of 50 passengers, 4 Pullman employees, 21 dining-car employees, and 1 train-service employee.

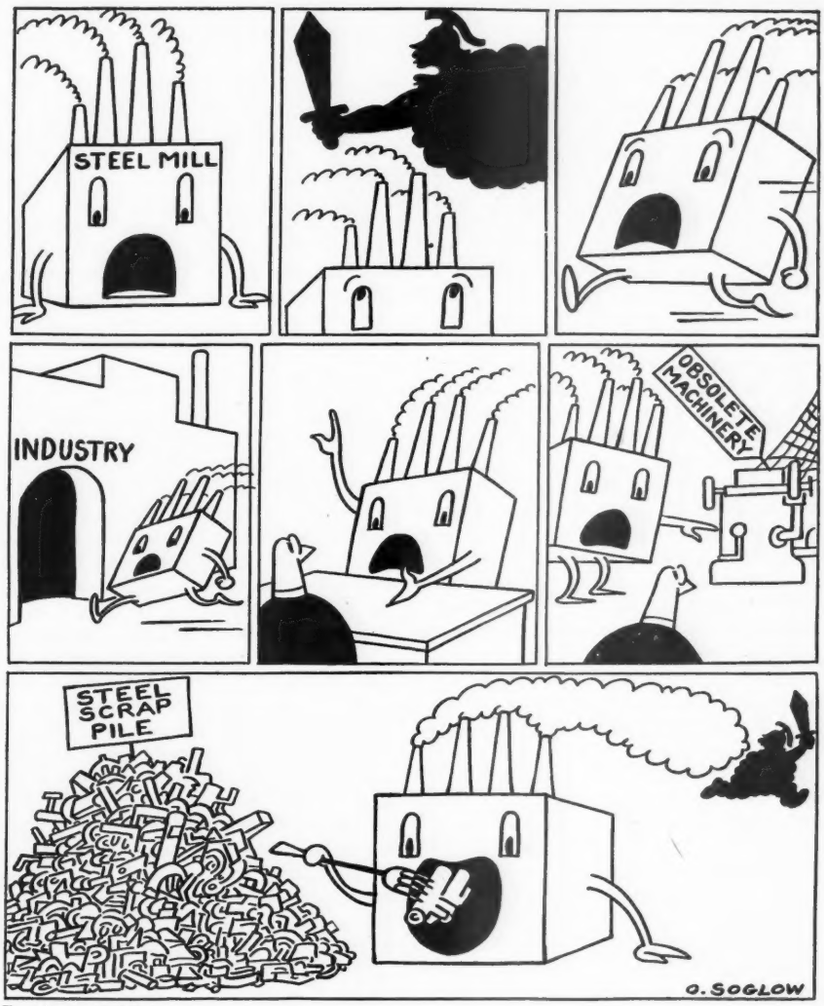
Examination of the front truck of the second Diesel unit "disclosed that the bearings of the armature of the traction-motor, which was driving the third pair of wheels, had been overheated and seized," the report said. As a result, it continued, the third pair of wheels stopped rotating, and there were slid-flat spots about 9 in. long on the treads of the wheels. It seemed apparent that the wheels had turned slightly after the first spots were made, as another flat spot, also about 9 in. long, overlapped the first slid-flat spot in each wheel tread. The false flange thus formed was about ½ in. wide by ½ in. in height. It was also found that the outer face of the rim of the left wheel of this pair was cut to a maximum depth of 1⅜ in. This cut formed a chord about 18 in. in length, and it was about 3 in. above the tread at the center of the chord.

These conditions, together with marks on the track, the report went on, indicated that "the outer edge of the wheel rim was lowered sufficiently, by the excessive tread wear resulting from the slid-flat spots, to engage the inside surface of the head of the stock rail [of the turnout] and to force the rail outward until the gage widened, then this wheel dropped inside the rail immediately north of the switch points. Apparently, the rail then returned to a more or less upright position, because the following wheels did not become derailed until the track became separated about 85 ft. north of the switch."

Among the devices with which the locomotive was equipped were a wheel-slip lamp and an audible signal connected to a protective ground relay system. The enginemen told the commission's investigators that, when the train was about 245 mi. south of the point of the accident, the protective ground relay alarm sounded in the control compartment, and the fireman discovered that the motor supplying power to the front truck of the second unit was operating in idling position. The fireman reset the relay and restored the motor to normal operation.

When the train had run about 70 more mi., the fireman inspected the motors and wheels, finding "no abnormal condition." When another 100 mi. had been run, however, the protective ground relay alarm sounded again, and the same motor was found operating in idling position. This time, the fireman shut off power from the generator to the motor. That also cut the motor out of the protective ground relay system and left the pair of wheels involved without the protection of the wheel-slip lamp. These warning devices operated only while current was supplied to the motor.

Subsequently, the train was stopped when the enginemen discovered "excessive smoke" emerging from the cooling vents of the motor, but they thought that accumulated lint and grease had caught fire from brake-shoe sparks—"because the motor housing was cool to the touch." They emptied the contents of a fire extinguisher through the vent; and the fireman said he observed from the ground, before he boarded the train at this stop, that the driving wheels rotated



The New Yorker

The campaign to salvage heavy industrial steel scrap, requested by the Department of Commerce and sponsored by some 70 business papers, including *Railway Age*, will be terminated May 15, one and one-half months ahead of schedule. As stated in previous issues of *Railway Age*, the purposes of the campaign were to help maintain steel mill capacities and to build an emergency stockpile of heavy scrap

and that "there was no apparent defective condition."

After noting that an employee of a commercial firm, located adjacent to the track about 35 mi. south of the point of derailment, had said that his attention was directed to "an unusual amount of sparks" around one of the Diesel-unit trucks, the commission made this comment: "The armature shaft of the traction motor involved was connected to the driving-wheel axle by a ring-and-pinion gearing, therefore, the armature shaft continued to rotate in its bearings as long as the driving wheels rotated and proportionately to the speed of the train. It is apparent that these bearings continued to heat after the crew inspected them from the ground, and finally became heated to a degree which resulted in the bearings seizing the shaft and stopping its rotation, and in turn, stopping the rotation of the driving wheels."

Then came that section of the report which pointed up the difficulties of detecting overheated bearings in inspections by train crews. "These traction-motor trucks," the report said, "are so constructed that it is practically impossible to touch the motor housing near the pinion-end, because of limited clearance between the main frame of the unit and the side frame of the truck. The traction-motor assembly is covered by a housing and it is cooled by an air-pressure system, so that an overheated bearing would be difficult to detect by touch. In addition, the view of the pinion-end of the bearing and of the driving wheels is obstructed by the truck sides."

In closing, the report noted that the Seaboard, on January 22, issued a bulletin addressed to train and engine crews and containing the instruction that when bearings of traction motors become overheated the train must proceed at reduced speed to the first auxiliary track, where the defective unit must be left for inspection and repair.

Similar Circumstances on C. & N. W.

In the similar accident on the C. & N. W. at Rock, Mich., the train involved was that road's No. 214, the "Peninsula 400," eastbound from Ishpeming, Mich., to Chicago. It consisted of two Diesel-electric locomotive units, coupled in multiple-unit control, and six cars. This derailment also occurred at a switch, the derailed equipment having been the right No. 3 wheel of the rear truck of the first Diesel unit, all wheels of the second unit, and all six cars of the train. One train-service employee was killed, and there were injuries to 13 passengers, 1 dining-car employee, and 1 train-service employee. The speed of the train was 68 m.p.h.

Here again false flanges were found. They were on the rear wheels of the rear truck of the first Diesel unit, and they were about 9/16 in. in height and 1 in. wide at their bases. The indications were that the derailment occurred in the same manner as did that on the Seaboard. Examination of the traction motors of the truck disclosed that both armature bearings of the motor driving the rear pair of driving wheels had become overheated and had seized. Thus the rear pair of driving wheels stopped rotating, and the slid-flat spots on their treads were formed.

The commission's investigation disclosed that on the day prior to the accident, while the Diesel unit was en route from Ishpeming to Chicago, the ground protective relay alarm was actuated on three occasions. In accordance with instructions, the engineer shut off the motor for the truck involved, and reported the matter upon his arrival in Chicago. An electrician inspected the motor, but the truck was "heavily coated with snow and ice" at the time. He thought there was water in the motor, so he isolated it, but let the motor driving the front axle of the truck remain in operation. He said that a complete inspection of the motor could have been made only by dismantling it.

On the return trip to Ishpeming, the electrician rode the unit from Chicago to Milwaukee, Wis., and "he observed no indication of any defective condition of the motor involved." The accident occurred on the return trip from Ishpeming, no defective condition having been observed by the enginemen in the "frequent" inspections which they said they made between that point and the point of the accident.

"It is apparent," the report said, "that the armature-shaft bearings were defective on the day prior to the accident, when the protective ground relay was actuated a number of times. . . . It is also apparent that these bearings overheated to a degree that sufficient distortion occurred to cause them to seize. This seizure stopped the rotation of the armature shaft which, in turn, stopped the rotation of the driving wheels."

The report went on to cite a statement by the electrician who said that the motors are so constructed that a proper inspection cannot be made from the ground, and that, unless the housings are removed, inspection from a pit is of little value. "The only proper inspection is by removal of the housings," the report added.

It went on to point out that after the motor was isolated, its protection by the ground protective relay system was nullified. "The carrier," it added, "is presently searching for a device that will give warning of the sliding of driving wheels of Diesel-electric engines."

On the Pennsylvania

The broken axle which caused the derailment on the Pennsylvania at Torrance, Pa., resulted from an overheated traction motor suspension bearing. The train was No. 79, the "Pennsylvanian," westbound for Chicago; it consisted of two Diesel-electric locomotive units and 15 cars, and it was traveling 40 m.p.h. when the locomotive units and the first 9 cars were derailed at an interlocking switch. One dining-car employee was seriously injured, and 7 dining-car employees, 8 passengers, and one train-service employee received minor injuries.

It was the front driving axle of the lead Diesel unit's rear truck which failed. The traction motor involved was gear-connected to the axle. "The condition of the broken ends of the axle," the report said, "indicated that it had been heated to an extreme temperature; the overheated metal was spalled and was fused on the bearing surface. When the left bearing cap and dust guard were removed, one piece of the bottom bearing shell containing a section of the lubrication window, and a smaller piece of shell, approximately 2 sq. in. in area, remained in the cap. The remainder of the bearing apparently had been crushed and passed out of the hub end of the cap. The felt lubricator pads had been consumed by fire; the oil had been burned from the bearing cap oil well, and the felt pad tensioning coil spring had collapsed.

Noting that present general railroad practice is to operate Diesel units on an assigned mileage basis between overhauls of these bearings, this report went on to say that "it is therefore essential that the bearings be properly and adequately designed and that utmost care be exercised in the inspection and lubrication of these bearings during operating periods if accidents are to be avoided." Then came the recommendation that consideration be given to the installation of devices to warn of overheated bearings.

"Such alarm devices," the report added, "are available and have been used for some time in journal boxes on various railroads. It is believed that a similar alarm, either of the electrical indicator or smoke and odor bomb type, could be adapted for use in traction motor bearings and could prevent accidents resulting from failure of overheated bearings."

Denney and Whittemore Elected to R.E.A. Board

Charles E. Denney, president of the Northern Pacific, and Laurence F. Whittemore, president of the New York, New Haven & Hartford, have been elected directors of the Railway Express Agency. Mr. Denney succeeds Frank J. Gavin, president of the Great Northern, and Mr. Whittemore succeeds Edward G. Buckland.

N. Y. C. Extends "Pacemaker" Freight Service to New England

The New York Central's "Pacemaker" freight service will be extended to and from New England on April 25. Through inauguration of two new trains on overnight runs each way between Boston, Mass., and Buffalo, N. Y., Massachusetts will be linked in "second morning" delivery with cities in New York, Ohio, Michigan, Indiana, West Virginia and Kentucky. The New England "Pacemaker," which will stop in both direc-

tions at Worcester, Mass., Springfield, Pittsfield, Albany, N. Y., Utica, Syracuse and Rochester, follows the previous establishment of "Pacemaker" freight service by special trains overnight each way between Buffalo and New York. At Buffalo, through cars are sent to, and received from, various midwestern points on connecting freight trains. A pool of 1,000 "Pacemaker" cars, the upper halves and doors of which are painted vermilion, and the lower halves gray, will be provided for the expanded, Diesel-powered service.

Hearing on Eastern Rate Pact Now Scheduled for May 11

The Interstate Commerce Commission has postponed, from May 4 until May 11, the hearing on the application filed by eastern railroads for approval of their proposed rate-procedures agreement. The application was filed under the Interstate Commerce Act's section 5a, which was added last year by the Bulwinkle-Reed Act. The hearing will be held at Washington, D. C., before Commissioner Rogers.

Railway Express Agency Resumes Operations at New York

The strike of some 5,700 loaders and package sorters employed in the New York terminals of the Railway Express Agency ended at midnight on April 17, with normal pickup and delivery service restored on April 18. Coincident with the end of the strike, the Agency lifted its embargo on all l.c.l. rail and air express shipments into, out of or through New York.

As reported in *Railway Age* of March 19, the strike originated as a "slowdown" of the loaders and sorters, who are represented by the Brotherhood of Railway Clerks, to enforce their demands for an immediate 40-hr. week with no reduction in pay and two consecutive days off, plus a 25-cents-per-hr. wage increase. The Agency had made a counter offer similar to the settlement recently reached by the railroads with their non-operating employees, i. e., a staggered 40-hr. week, effective September 1, at the same rate of compensation paid for the present 44-hr. week, plus a 7-cents-per-hr. wage increase retroactive to October 1, 1948.

The embargo was made effective on March 9, when the R.E.A. also abolished the jobs of the strikers and of some 3,300 non-striking drivers affiliated with the International Brotherhood of Teamsters, who were unable to work because of the strike. Subsequently, as reported in *Railway Age* of March 26, a damage suit for $5 million was filed against the clerks' organization by the Agency, on the ground that its business had been "completely interrupted and stopped" by the slow-down.

An emergency board, consisting of David L. Cole, Paterson, N. J., chairman, Aron Horvitz, New York, and Leverett Edwards, Oklahoma City, Okla., was appointed by President Truman on April 9, (as stated in the April 16 issue of *Railway Age*) and began hearings at Washington, D. C., on April 18. It is scheduled to make its report by May 9, but has indicated it would "start from scratch," throwing out any earlier commitments and agreements — a procedure which may require an extension of time.

As conditions precedent to the resumption of work, the company has agreed to drop its suit against the union; while the latter has agreed to give up claims for lost pay, which it had said would amount to approximately $2 million. The company also agreed to take back all the striking employees, but retained its right under the contract presently in force to lay off workers in the event of an anticipated post-Easter decline in business. The union is understood to have contended that full employment of all strikers would be necessary to clear up the backlog of shipments accumulated just before the embargo declaration. Company spokesmen have stated, however, that there is no such backlog, because the embargo was declared so soon after initiation of the original slowdown. "Upon return to work of the New York City employees, the express terminals and other facilities will be functioning under regular operations," J. F. Ross, general manager of the Agency's New York City department, declared in announcing the end of the embargo.

It is understood that the emergency board will consider the situation on a national, rather than a local basis, since the New York dispute is part of nationwide negotiations between the company and its clerks. The union is reported to be willing to wait until September 1 for application of the 40-hr. week on a national basis, but has demanded it immediately in New York because express drivers in that area are already on such a schedule. Union efforts to spread the strike were unsuccessful except at one or two New Jersey points within the general metropolitan area.

Albert M. Hartung, R.E.A. vice-president in charge of personnel, is reported to have placed the cost of the strike to the company at $2 million per week in loss of business, and to the employees at approximately $600,000 per week in lost

NO SEATS IN THE BAGGAGE CAR

To counteract the misleading comparisons of airplane "*coach*" fares with railroad *first-class* fares, currently being advertised by certain air lines, the Great Northern has published in newspapers in St. Paul, Minn., Minneapolis, Spokane, Wash., and Seattle, advertisements headed as above and quoted in full below. The ads, prepared with the cooperation of Campbell-Mithun, Inc., included an illustration of G. N. Diesel-electric passenger locomotives and an outline map of the railroad. Fares quoted do not include the 15 per cent federal tax.

In the battle for passenger patronage some airlines too frequently show a deplorable tendency to bamboozle the public through publication of misleading comparisons of fares and vague statements of services.

Promotional spotlights now are on the so-called airplane "coach"—whatever that is. (One airline's official tariff circular states that passengers will ride with cargo on "coach" planes.) Current airline advertisements on "coach" service between St. Paul (Minneapolis' airport) and Pacific Northwest cities lead the public to believe that plane "coach" fares are substantially lower than those charged by railways, which provide *no seats in the baggage car.*

But, the airline advertising does not quote *comparable fares* for *comparable accommodations*—the difference between a deluxe coach seat on the streamlined "Empire Builder" and the "Oriental Limited" and a collapsible seat in a passenger-cargo plane.

The advertisements quote the one-way air "coach" fare between Minneapolis and Seattle as $56 as compared with $76.95 for a one-way first class railway ticket and *a lower berth between those points.*

***Actually, a one-way railway coach ticket between St. Paul and Seattle on Great Northern trains is $43.71 as compared with $56 for a one-way air "coach" ticket between* those points. That's a saving of $12.29 for the train traveler, plus the comfort of a de*luxe seat in a car for passengers only! Round-trip coach fare via train from* St. Paul to Seattle and return is *$43.95 less* than the round-trip air "coach" rate—$68.05 by railway, $112 by plane.**

Now compare the *first class railway fare* plus a lower berth with *first class air fare —for a seat, not a bed*—between St. Paul and Seattle. By Great Northern the cost is $76.95 as compared with $97.25 via air—a difference of $20.30 in favor of the railway!

The difference is proportionately greater in favor of train travel in first class round-trip fares. A round-trip, first class air ticket between St. Paul and Seattle is $184.80 as compared with $127.20 for a round-trip, first class railway ticket *including standard lower berth both ways—$57.60 less than by air.*

It is not the intent of this statement to discuss the relative merits of train and plane travel. Both have their desirable points, and the public must and will be the judge of which better fits its requirements.

It is the intent of this statement to tell the traveling public the truth about air fares—that they are not now and never have been lower than railway fares.

pay — the latter amount, however, being partially offset by the fact that employees were declared eligible for $25 per week each in unemployment insurance benefits. These direct costs, Mr. Hartung further declared, were exclusive of the undetermined "continuing loss in business and therefore reduction in jobs . . . due to the dissatisfaction of the public in our service because we are unable to deliver. Their uncertainty that we'll be able to give service may continue after the dispute is settled."

Pennsylvania Asks Increase in New Jersey Commuter Fares

The Pennsylvania has filed with the Interstate Commerce Commission and the Board of Public Utility Commissioners of New Jersey new tariffs calling for increases averaging approximately 20 per cent in commutation fares applying to New Jersey points on its New York division from Trenton, N. J., northward, with certain exceptions. The tariff proposes that the new fares become effective May 15. They will apply to interstate commutation between the city of New York and New Jersey communities and also to commuter travel within New Jersey. The new fares, the P.R.R. said, will bring commutation rates for the cities affected up to the level of the scale in effect on the Central of New Jersey and on the New York & Long Branch, which is operated jointly by the C. of N.J. and the P.R.R.

The Pennsylvania was authorized, effective April 1, to increase its fares at common points to the same levels authorized for the C. of N.J. Therefore, the P.R.R. said, the effect of the new tariff will be to place the remaining communities on the road upon the same scale of commuting fares and remove existing inequalities.

Earthquake Damage to Railroads In Pacific Northwest is Slight

The earthquake which shook the Pacific Northwest on April 13 caused little damage to railroad facilities and only minor interruptions in service, according to a *Railway Age* survey of roads operating in that area. The quake was felt over a 500-mi.-long area, but caused the greatest damage in the Puget Sound cities of Seattle, Wash., Tacoma and Olympia.

The Northern Pacific reported that some damage was inflicted on its right-of-way as a result, principally, of settling and slip-out of fills. The road's Point Defiance line, 31 mi. south of Tacoma, experienced serious slides for some 275 ft., and some 7,500 yd. of fill was required to put both tracks back in operating condition. The eastbound track was reopened on the night of April 14 and the westbound track several days later. While this line was out of service, traffic was routed over the Prairie route between Tacoma and Portland, Ore. The King Street passenger station in Seattle, used jointly by the N. P. and Great Northern, was damaged slightly, as was Union station in Tacoma.

Plaster and lighting fixtures in the Union Pacific's depot in Seattle were shaken loose and one inside wall collapsed. The quake also caused the road's water tank on the Seattle dock to break loose, threw some track out of line in the Olympia yard, and cracked plaster and dislodged bricks in the Olympia depot. A joint track (with the N. P.) was put out of service between East Olympia and Tacoma due to a slide 7½ mi. east of Tacoma and a depression in the track. On this route the Patterson Lake bridge at Mile Post 31 was thrown out of line and depressed, necessitating the re-routing of trains. All trains using the joint track between Portland and Seattle were held several hours pending an inspection of track and bridges. Telegraph and telephone circuits were put out of service between Seattle and Portland.

The Chicago, Milwaukee, St. Paul & Pacific and Great Northern reported damage to properties and interruption in services as negligible.

Proposes 5-Year Railroad Claim Prevention Program

Declaring that "a load of sand bags instead of a mile-long concrete abutment" is being used to repair the "dyke through which $150,000,000 of railroad net earnings escaped last year," Robert J. Bayer, editor of Traffic World, proposed in an address at Chicago last week that a five-year plan be evolved to combat loss and damage to freight. Speaking before a joint luncheon session sponsored by the Mid-West Shippers Advisory Board and the Traffic Club of Chicago, he suggested that each railroad should agree, in each of the five years, to contribute to a general claim-prevention fund a stated percentage of its previous years' claim total—about 5 per cent.

Mr. Bayer said that half of the contributed money could be returned to the railroad for use in its own area for claim prevention work, in a program integrated with a national plan on which the other half would be spent by an agency set up by the Association of American Railroads. He added that the over-all national plan would not merely be one of publicity and propaganda, but would include inspection by men employed by the association and would be guided by an executive council with power to tell individual railroads what to do and to see that they did it. Into such a plan, said Mr. Bayer, might be fitted numerous programs set up by groups of shippers, such as that already put into working order voluntarily by the Porcelain Enamel Institute.

Said the speaker: "When we take $200 million [estimated 1948 claim figure for all transportation agencies] worth of the products of American brains, work, and ingenuity, and consume it in a gigantic holocaust of transportation destruction, we are not merely taking money from the transportation agencies to pay the bill—not merely submitting American industry to increased freight rates to meet that bill—and the countless inconveniences and corollary losses of reproduction and resale—we are striking a vicious blow at the welfare of the American people. Our problem is no longer a transportation problem, it is no longer even merely a general economic one—it has become a moral problem."

"Satisfactory Solution" Predicted To Diesel Oil Problem

"Between the railroads and the petroleum industry there will be worked out some satisfactory solution" to provide adequate supplies of fuel and lubricating oils for Diesel-electric locomotives "at a price commensurate with the value of the product," according to a paper prepared by representatives of the Socony-Vacuum Oil Company for delivery at the April 21 meeting of the New York Railroad Club.

The address, prepared by Albert J. McIntosh, company economist, for delivery by R. W. Reinhart, manager of Socony-Vacuum's market research department, reviewed the development of the petroleum industry, and summarized the fuel economies which they expect to result from substitution of Diesel locomotives for coal-or oil-burning steam locomotives.

"Since 1944," the talk continued, "the use of heavy fuel oil by the railroads has declined. In 1948 we estimate that the consumption for all service was not more than 90 million bbl. In a study which we made recently . . . we concluded that the total Diesel fuel oil consumption by railroads would increase approximately 36 per cent in 1949 over 1948, 27 per cent in 1950 and 21 per cent in 1951, and we do not know of anything now which would alter that general conclusion. This simply means that by 1951 your use of Diesel fuel oil probably will be about double what it was in 1948, and we believe that the consumption of lubricants for Diesel locomotives will increase at about the same rate. In 1948 we estimated that the railroads used about 330,000 bbl. of lubricants in their Diesel locomotives, but by 1951 we think this may grow to about 630,000 bbl.

"You probably are most interested to know whether the [petroleum] industry can supply these quantities of Diesel fuel oils and lubricants and at what price."

The general conclusion referred to above was supported by the statements that "The petroleum chemist today can do almost anything he wants to do with the petroleum hydrocarbons, but many things are not done because of the economics involved. . . . Under a competitive enterprise system . . . do not have any fear that Diesel fuels will not be avail-

able to the extent they are needed. . . . We cannot guarantee anything for the railroad future, or any other future, but if the industry . . . is given a free hand and a fair incentive, it will do the job well and better than can be done by any other means."

Elsewhere in the talk it was pointed out that "It has been proved mathematically that all trains in the United States could be powered by Diesel engines and not use any more total petroleum than is now being used by both the Diesel and fuel oil burning engines. That . . . leaves a slightly wrong impression . . . because there would have to be a lot of changing in the industry to utilize residual fuel to produce Diesel oils and get an equivalent quantity."

March Revenues 6.4 Per Cent Below Those of March, 1949

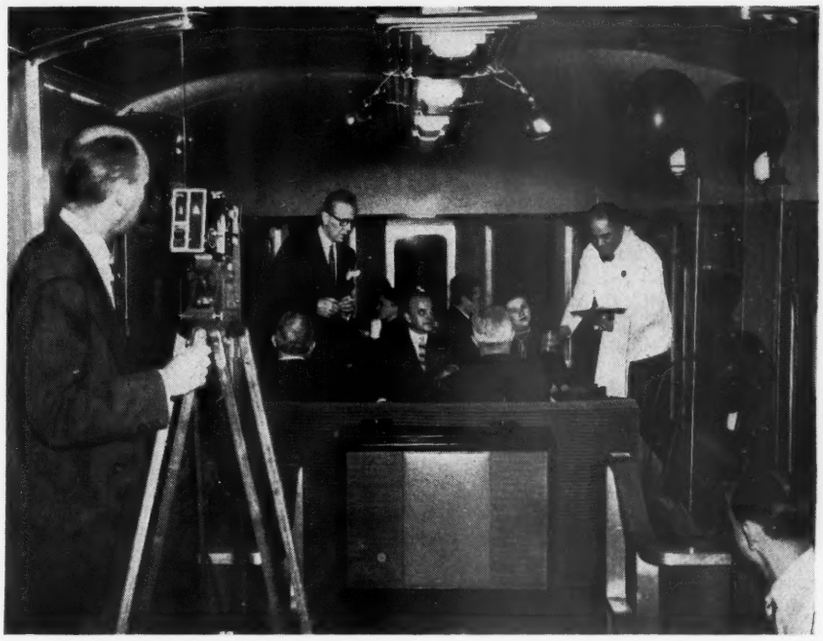
From preliminary reports of 82 class I railroads representing 81.7 per cent of total operating revenues, the Association of American Railroads has estimated that the March gross amounted to $593,736,625, a decrease of 6.4 per cent below the $634,386,141 reported for the same 1948 month. Estimated March freight revenues were $495,071,630, as compared with March, 1948's $524,237,074, a decrease of 5.6 per cent. Estimated passenger revenues totaled $53,833,554, as compared with $60,347,354, a decrease of 10.8 per cent. The estimate for all other revenues was $44,831,441, as compared with $49,801,713, a decrease of 10 per cent.

C.A.B. Issues New Regulations For Irregular Air Carriers

The Civil Aeronautics Board on April 18 issued new regulations for irregular air carriers and proposed additional regulations designed to bring the operations of such carriers under closer supervision by the board. The new regulations involve, among other things a revision of the board's so-called economic regulations, which becomes effective May 20. In announcing its action, the board said that experience had demonstrated the need for the revision. It added that, although a number of the large irregular carriers have attempted to comply with the regulations now applicable to their operations, others have been seeking out the more lucrative routes and operating thereon "with increasing regularity."

One of the major changes effected by the new regulation is termination of the existing blanket exemption for the large irregular air carriers. The new regulation provides that each such carrier, in order to continue its operations, must file with the board within 30 days from May 20 an application for an individual exemption from some provisions of the Civil Aeronautics Act. The carrier may then continue to operate while the board is considering its application. The applications will be granted only in cases where "it is demonstrated that a need for irregular air service exists."

The new regulations will also require the large irregular carriers to publish and observe their rates; and they will also bring such carriers under C.A.B. regulation as to such matters as mergers and interlocking relationships. Under the new regulations, the blanket exemption will be continued for so-called small irregular air carriers, i.e., those which do not use aircraft units having a gross take-off weight in excess of 10,000 lb. for any one unit or of 25,000 lb. for the total of their units. However, these small irregulars will be affected in other ways; for example, they will be prohibited from entering into or maintaining any agreements or arrangements to conduct combined operations.



The New York Central, on April 24, will begin a weekly series of six television spot announcements over several New York City stations. Planned on a 52-week basis, the spots will feature N. Y. C. trains, such as the "Twentieth Century Limited," the "Pacemaker," and the "Empire State Express"; the Niagara Falls, N. Y., vacation area, and a special "vacation guide." A variety of nine spots will be used on a rotating basis for the Central's first television campaign, which may later be extended to other cities. Above, Roger Pryor (standing, center left), television director for Foote, Cone & Belding, supervises the filming of one of the spots on the "Century"

Bans Multiple-Car Rate Proposed by Union Pacific

A multiple-car rate proposed by the Union Pacific to obtain petroleum and petroleum-products traffic, for which a pipe line might otherwise be built, have been disapproved by Division 2 of the Interstate Commerce Commission. The proposed rate, designed to serve a refinery of the Salt Lake Refining Company, was 42 cents per 100 lb., minimum 240,000 gal., the equivalent of 30 tank-car loads, for movements from Salt Lake City, Utah, and Woods Cross to Spokane, Wash., Walla Walla, Umatilla, Ore., Boise, Idaho, and directly intermediate points.

The rate was proposed, the commission's report said, when the U.P. was told by the Standard Oil Company of California, parent corporation of Salt Lake Refining, that if such a rate were established the construction of a pipe line to handle the traffic would be "deferred temporarily." The 42-cent rate would have been blanketed to destinations which now take single-car rates ranging from 72 cents to 95 cents per 100 lb. on rened oils and from 61 cents to 79 cents on distillate oils. The commission indicated that it did not like this blanketing, or the spread between the single-car rates and the proposed multiple-car rate.

"Under respondent's proposal," the report said, "the single-car rate from Salt Lake City to Spokane would be 53 cents higher than the multiple-car rate, although the difference in direct cost according to respondent's study is only about 2.5 cents. Such a rate relation would not be just and reasonable. Furthermore, we are unable to approve as just and reasonable a rate which would be blanketed for a distance of 630 miles as here proposed. As a consequence of this situation the difference in cost between Boise and Spokane growing out of the former's advantage of 475 miles in distance (recognized at present in a rate difference of 25 per cent) would be disregarded."

The report went on to cite U. P. statements to the effect that it is considering a possible reduction in its single-car rates on petroleum from Salt Lake City

to the Northwest. "If that plan is carried out," the report added, "respondent may be in a position to establish multiple-car rates also which will not be subject to the foregoing criticism."

The condemned rate was published in suspended schedules which the present report ordered canceled. The proceeding was I.&S. Docket No. 5603, and the report was by Commissioner Aitchison.

Freight Car Loadings

Loadings of revenue freight in the week ended April 16 totaled 765,890 cars, the Association of American Railroads announced on April 21. This was an increase of 8,106 cars, or 1.1 per cent, above the preceding week, a decrease of 18,721 cars, or 2.4 per cent, under the corresponding week last year, and a drop of 99,954 cars, or 11.5 per cent, under the equivalent 1947 week.

Loadings of revenue freight for the week ended April 9 totaled 757,784 cars, and the summary for that week as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loadings
For the week ended Saturday, April 9

District	1949	1948	1947
Eastern	138,939	136,083	153,612
Allegheny	162,917	137,128	174,696
Pocahontas	63,097	21,942	36,488
Southern	121,020	117,333	122,063
Northwestern	111,662	103,798	93,968
Central Western	106,701	103,861	115,274
Southwestern	53,448	62,789	61,738
Total Western Districts	271,811	270,448	270,980
Total All Roads	757,784	682,934	757,839
Commodities:			
Grain and grain products	42,141	37,181	45,731
Livestock	8,569	10,481	11,921
Coal	157,536	53,129	112,052
Coke	14,932	9,526	12,823
Forest products	35,836	42,501	45,145
Ore	60,932	40,324	27,198
Merchandise l.c.l.	96,404	113,244	125,688
Miscellaneous	341,434	376,548	377,281
April 9	757,784	682,934	757,839
April 2	725,623	660,631	715,159
March 26	596,329	663,663	829,392
March 19	608,767	699,593	844,041
March 12	709,326	796,486	841,147
Cumulative total 14 weeks	9,713,048	10,508,546	11,303,303

In Canada.—Carloadings for the week ended April 9 totaled 71,997 cars, compared with 73,491 cars for the previous week, and 77,789 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
April 9, 1949	71,997	32,528
April 10, 1948	77,789	36,225
Cumulative totals for Canada:		
April 9, 1949	1,016,193	447,525
April 10, 1948	1,027,724	510,721

Rules Against Forwarder Contention on Claims

Forwarders seeking to recover from railroads and other carriers amounts paid on claims to their own customers must comply with time-limit provisions in the claim clauses of the carrier bills of lading, the United States Supreme Court has ruled. The ruling reversed a decision wherein the Circuit Court of Appeals for the Second Circuit had held that, for purposes of claims, the forwarder is an "initial carrier" with "right-over" against the carriers which haul its shipments.

The pertinent provisions of the Interstate Commerce Act's Part IV (section 413) cannot be so interpreted, the Supreme Court said, because, under that act, the carriers "must treat the forwarder as a shipper for all purposes." The opinion of the court was delivered by Chief Justice Vinson, while the dissents of Justices Black, Douglas and Rutledge were noted.

The case, which came up from the United States District Court for the Southern District of New York, involved a petition of Acme Fast Freight, Inc., for a declaratory judgment with respect to section 413. That section provides that sections 20 (11) and (12) of Part I shall apply to forwarders and stipulates further that "the freight forwarder shall be deemed both the receiving and delivering transportation company for the purposes of such sections 20(11 and (12)." These sections relate to the issuance of bills of lading and the railroads' liability thereunder, and further provide that the issuing road or initial carrier shall be entitled to recover the amount of claims paid to shippers from the road on which the loss or damage occurred.

On the basis of these provisions, Acme contended that it was the "initial carrier" with respect to claims it paid; that it was thus subrogated to the rights of its shippers against the railroads; and that it could collect from the railroads even though it was unable to file its claims within the 9-months period specified in railroad bills of lading. The district court rejected these contentions with a ruling to the effect that Acme was a shipper in all its relations with the railroads. The circuit court reversed this judgment, holding that while Acme was not a carrier, it might be considered one for the limited purposes of section 413; and that, as such, it was an initial carrier. This was the determination, which was appealed by a group of railroads, that the Supreme Court reversed to uphold the district court's ruling.

In doing so, it reviewed at some length the legislative history of Part IV, noting the care which Congress took to avoid according carrier status to the forwarders. "The act," the court said, "leaves the freight forwarder in substantially the same position it had previously held with respect to its liability to shippers and its rights against underlying carriers. The hearings, committee reports and debates are bare of any suggestion that forwarders needed relief from the requirement that they file their claims against carriers like other shippers . . . The have done so for over a century. They have continued to do so since enactment of the Freight Forwarder Act . . . We would require a much clearer showing than has been made to find that Congress intended, without increasing the liabilities of forwarders regulated by the act, to give them a right-over against railroads . . . as initial carriers under section 20(12)."

Study, Coordination, Agreement Can Reduce Claims, Says H. H. Pratt

"The time has come when producers should stop blaming everything on the railroads, and for the carriers, including the railroads, to stop blaming losses or damage in transit on the producers, for, as they claim, making shipments in insecure or inadequate packages," Henry H. Pratt, general traffic manager of the Crucible Steel Company of America, told the Syracuse, N. Y. Traffic Club on April 18. "This is no way," he said, "to solve this problem. We need the best technical advice, we need more coordination of effort, we need an agreement among ourselves as to the best approach to achieve the ends we must attain."

Mr. Pratt, who is also president of the Atlantic State Shippers Advisory Board, was speaking at one of "approximately 200" meetings being held throughout the country in recognition of "Perfect Shipping Month." To prove that freight claims can be reduced, he cited the experience of his own company, which "undertook some time ago to attack this problem in a practical manner." The method adopted was to appoint a committee of experienced men from each plant, with the general traffic manager as chairman and coordinator, to study "all matters pertaining to marking or identification, the packaging of the material, the construction and specifications of the packages, the loading, bracing, securement and protective features of all shipments while in transit." The committee was directed also to "study and apply changes where necessary."

To demonstrate the success of the committee's work, the speaker further cited the case of one of his company's products, formerly loaded and unloaded by hand and subject to frequent damage in transit when loaded loose. Since the committee "succeeded in preparing a package that can be handled with a lift truck," Mr. Pratt said, there had been no losses and no mishaps; with the new package, moreover, "one man and a lift truck can now unload a car in from 30 to 45 min., whereas under the old method it required from five to seven men an entire day." On outbound shipments, his company, he added, had filed 27 per cent fewer claims, for 23.5 per cent less total value, in 1948 than in 1947.

"It is the responsibility of the producer," Mr. Pratt continued, "to package his material in a satisfactory container, and deliver it to transportation in a condition that will assure safe and prompt arrival at destination. Any effort to compromise on this requirement results in lost or damaged merchandise, dissatisfied customers and many other things that are an economic waste. . . . Carriers have responsibilities, too. Some of this

damage is caused by unnecessarily rough handling or by handling merchandise without proper equipment. There is much to be done . . . to provide additional up-to-date methods and equipment, better trained men, closer supervision, and a real effort to prevent loss and damage."

Tomorrow's Railroads Depend On Today's Earnings, Faricy Says

Since the end of the war, the railroads have spent more than $2½ billion on better plant and facilities to improve their service, William T. Faricy, president of the Association of American Railroads declared in an address prepared for delivery to the Fourth Mississippi Valley World Trade Conference at New Orleans, La., on April 22. This sum, Mr. Faricy said, was on top of the expenditure since the close of the first World War of nearly $13¾ billion.

"In the past quarter of a century," the A.A.R. president stated, "the railroads have spent for additions and betterments, to add to their capacity and improve their service, more than two dollars for every one dollar they have been able to pay their owners in dividends."

Pointing out that American railroads "represent today one of the world's supreme examples of what can be done by the business method, the private enterprise way, of getting the work of the world done," Mr. Faricy said that "there can be no doubt that the future health of the railroads—and indirectly the future of the free enterprise business way of doing things in America—depends upon the ability of the railroads to continue to improve their facilities and their services as privately owned and privately operated enterprises."

Explaining why the railroads have been able to make improvements costing $2½ billion since the end of the war, although their average annual rate of return on net investment has been only about 3½ per cent, he declared:

"Partly it has been done because cars and locomotives can be bought on the partial payment plan—by going into debt for them. Partly it has been done by not paying to the owners of the properties the dividends which under other circumstances they should have received. Partly it has been done by drawing on the cash and working capital of the railroads to the extent of more than half a million dollars a day, on the average, since the end of the war."

Mr. Faricy maintained that "tomorrow's railroads—and indirectly tomorrow's business structure—depend upon earnings today." He also stated that the railroads' greatest contribution to world trade is providing the connecting link between ports and inland points of production and consumption. They also encourage world trade through their departments of foreign trade and through special arrangements and extensive facilities at the ports.

ORGANIZATIONS

The **Northwest Shippers Advisory Board** will hold its eighty-eighth regular meeting on April 28, at the Alonzo Ward Hotel in Aberdeen, S. D. The noon luncheon will be addressed by Z. G. Hopkins, special representative, public relations department, Association of Western Railways, whose subject will be, "What Is Ahead in the Transportation Field."

The **Railway Club of Pittsburgh** will hold its next meeting on April 28, at 8 p.m., at the Fort Pitt Hotel, Pittsburgh, Pa. Major A. M. Ahmajam, executive officer of District Engineer's Office, U. S. Army Engineer Corps, will speak on "Flood Control in Its Relation to the Railroads."

A motion picture made on the Illinois Central, "Suggestions Unlimited," will feature the next meeting of the **Indianapolis Car Inspection Association,** on May 2, at 7 p.m., in the Assembly room of the Big Four Building, Indianapolis, Ind.

A. L. Green, special representative—Freight Claim Division, Association of American Railroads, will be the principal speaker at the May 9 meeting of the **Car Foremen's Association of Chicago,** at the Hotel LaSalle, at 8 p.m. Mr. Green's subject will be "How Loss and Damage Can Be Prevented."

The next meeting of the **Car Foremen's Association of Omaha, Council Bluffs and South Omaha Interchange,** will be held on May 10 at 7:30 p.m., in the Railroad Y.M.C.A., Council Bluffs, Iowa.

The **Southern & Southwestern Railway Club** will hold its next meeting on May 19, at 10 a.m., in the Rainbow Roof of the Ansley Hotel, Atlanta, Ga. F. C. Hasse, vice-president, Oxweld Railroad Service Company, Chicago, will present a paper entitled "Unionmelt and Heliarc Welding."

The annual party and election of officers of the **Northwest Locomotive Association** will be held on May 23 at 8 p.m., in the Colonial Club, St. Paul, Minn.

The New York division of **Railroad Enthusiasts, Inc.,** will hold its next meeting on Wednesday, April 27, at 7:45 p.m., in room 5928, Grand Central Terminal, New York. Allen A. Lister, general traffic manager of the Terminal Railroad Association of St. Louis, will speak on "The How and Why of a Terminal Railroad."

A panel discussion, "The 40-hr. Week —What Now in M. W. Work," will feature the annual meeting of the **Maintenance of Way Club of Chicago** on April 25 at 6 p.m., at Eitel's restaurant in the Field Building, 130 S. Clark street. Comprising the panel will be Daniel P. Loomis, chairman, Association of Western Railways; C. M. Chumley, engineer M. of W., Illinois Central; H. R. Clarke, chief engineer, Burlington Lines; C. G. Grove, chief engineer M. of W., Western region, Pennsylvania; and E. C. Vandenburgh, chief engineer, Chicago & North Western. W. G. Powrie, engineer M. of W., Chicago, Milwaukee, St. Paul & Pacific, and president of the club, will act as moderator.

SUPPLY TRADE

Leo H. Corning, whose promotion to manager of the structural and railways bureau of the **Portland Cement Association** at Chicago was reported in the *Railway Age* of April 9, is a graduate civil engineer, having received his B.S. and C. E. degrees from the Case Institute of Technology, Cleveland, Ohio. During World War I he served as an engineering instructor in the Coast Artillery Corps of the army. He subsequently engaged in private practice as an architect and engineer in Florida, and later served

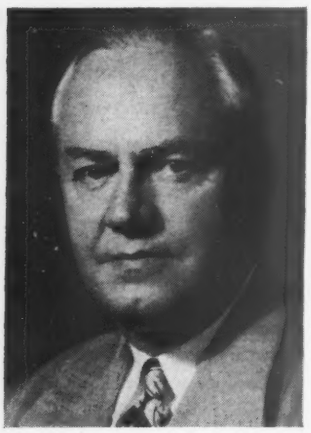
Leo H. Corning

as structural engineer with the M. A. Hanna Company at Cleveland, Ohio, and as design engineer for the water department of that city. Prior to joining the Portland Cement Association in May, 1929, he held the position of structural engineer with the Foundation Company, contractors and engineers, at Chicago. Mr. Corning was appointed assistant manager of the association's structural and railways bureau in 1935, which post he held at the time of his recent promotion.

The **Federal Telephone & Radio Corp.,** Clifton, N. J., an associate of the International Telephone & Telegraph Corp., has announced the appointments of **Raymond S. Perry** as general sales manager to direct all commercial activities and **Edward W. Butler** as director of the radio division.

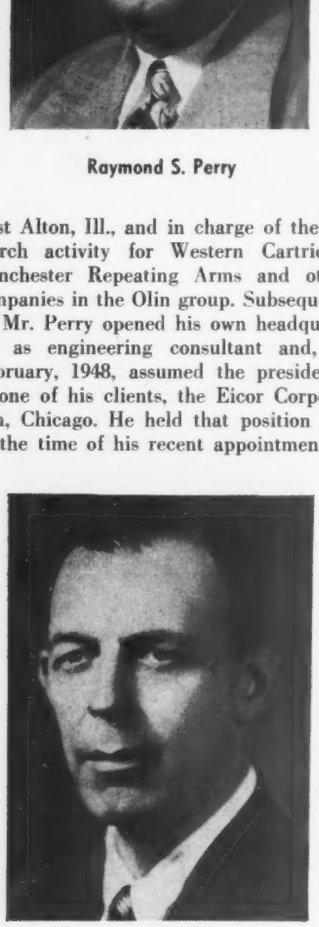
Mr. Perry was graduated from the

Massachusetts Institute of Technology and from 1931 to 1943 was associated with the Ingersoll Milling Machine Company, advancing to vice-president in charge of engineering and sales. From 1943 to 1946 he was a member of the board of directors of Olin Industries,



Raymond S. Perry

East Alton, Ill., and in charge of the research activity for Western Cartridge, Winchester Repeating Arms and other companies in the Olin group. Subsequently, Mr. Perry opened his own headquarters as engineering consultant and, in February, 1948, assumed the presidency of one of his clients, the Eicor Corporation, Chicago. He held that position until the time of his recent appointment.



Edward W. Butler

Mr. Butler was graduated from Stanford University in 1923, and subsequently was associated with the Radio Corporation of America for more than 10 years. In 1944 he joined P. R. Mallory & Co. as manager of the rectifier division and three years later joined Sylvania Electric Products, Inc. He recently resigned as general manager of the electronics division of that company and will assume his new duties with Federal on April 25.

William J. O'Neill, whose recent retirement as superintendent of motive power of the Western Pacific was reported in *Railway Age* of April 9, page 80, has been appointed senior vice-president of the railway division of **Allen-O'Neill Associates, Inc.,** San Francisco, Cal.

D. D. Robertson, assistant sales manager of the Spicer Manufacturing division of the **Dana Corporation,** Toledo, Ohio, has been promoted to sales manager, and **Willis L. Stone,** of the sales department, has been promoted to assistant sales manager.

D. D. Robertson

Mr. Robertson was graduated in mechanical engineering from the Georgia School of Technology, after which he joined the Bethlehem Steel Company. He later worked as chief engineer of the Wilkening Manufacturing Company, Philadelphia, Pa., and also was in charge of all original equipment sales to auto-

Willis L. Stone

mobile and industrial manufacturers. Mr. Robertson joined Spicer in 1937 as sales engineer and was appointed assistant sales manager in 1943.

Mr. Stone was graduated from Syracuse University and, in 1945, joined the Brown-Lipe Gear Company, Syracuse, N. Y. He went to Toledo, Ohio, when the Brown-Lipe facilities were merged with those of Spicer and, in recent years, held several key positions in the sales department.

C. D. Hicks & Co., Clayton (St. Louis), Mo., has been appointed railroad sales representative in St. Louis for **Sprague Devices, Inc.,** Michigan City, Ind., and **Hachmeisters, Inc.,** Pittsburgh, Pa.

Walter A. Stewart, trustee and former vice-president of the **American Optical Company,** has been elected president to succeed **George B. Wells,** resigned.

The **Vapor Heating Corporation,** Chicago, has announced the appointment of **E. B. Moore** as director of research of heating controls, thermostats and re-

E. B. Moore

lays used by the transportation industry. Mr. Moore, who is a graduate in engineering of Purdue University, has spent many years in the technical development of heating equipment.

T. F. Birmingham, vice-president of the **Superheater Company,** division of Combustion Engineering-Superheater, Inc., at East Chicago, Ind., has retired. Mr. Birmingham began his career as a machinist apprentice in the Union Pacific shops at Omaha, Neb., and subsequently was promoted to inspector of their new locomotives at the builders' plants. On November 1, 1911, he joined Superheater, then the Locomotive Superheater Company, and worked as inspector for the company at the locomotive builders' plants. During 1930 he was appointed works manager of the company's East Chicago plant and, in May, 1946, was elected vice-president.

OBITUARY

Frank E. Vigor, vice-president in charge of operations of the Armco Steel Corporation, died on April 12, at Cleveland, Ohio. He was 62 years old.

ABANDONMENTS

Ohio & Morenci.—Examiner J. A. Prichard has recommended in a proposed report that Division 4 of the Interstate Commerce Commission deny this road's application for authority to abandon its entire line extending from a point near Berkey, Ohio, to Morenci, Mich., 21 miles, and 1.7 miles of industrial track in Blissfield, Mich. The O.&M. contends that operation of the line has been unprofitable, that it is in a bad state of maintenance, and that no franchise was obtained from Morenci to operate within that community. The examiner said the facts "strongly indicate that the applicant connived with others to have the New York Central build tracks to reach the industries in (Morenci) so that the applicant's business would be reduced to an extent sufficient to warrant the abandonment of its line." Noting that the applicant's original investment in the line was $33,450, the examiner added that "it is obvious" that Summer & Company, the applicant's sole stockholder, "now desires to procure $242,800 through salvage of the properties." Mr. Prichard stated that the operation of the line had been profitable during the past 6 years. Further, he added, the negotiations between the applicant and the Parker Rust Proof Company (the largest industry in Morenci), whereby the New York Central was brought into the Morenci traffic picture, leads "to a strong suspicion that the applicant, under the domination of Summer & Company, disregarded its obligations to the public as a common carrier in order to enable that company to achieve a selfish purpose." The Morenci council's demand that the applicant procure a charter to operate within the limits of that borough, or else take up its tracks, the examiner said, appears to have been "seized upon by the applicant as justification for the removal of its track from Mill street to make way for the New York Central." In making his adverse recommendation on the application, Mr. Prichard said that the applicant should be required to continue operation for two years in order to afford the remaining shippers an opportunity to demonstrate whether they can furnish sufficient traffic to support such operation. The proposed report also said that "the equity of this case would seem to be with the shipping interests, which would be greatly inconvenienced and suffer considerable loss as a result of the proposed abandonment," and that a "carrier that intentionally manipulates its affairs so as to cut off a large portion of its revenues, should not be heard to say that the loss of such revenues is a valid reason for abandonment of its railroad."

Southern Pacific.—Examiner J. S. Prichard has recommended in a proposed report that Division 4 of the Interstate Commerce Commission authorize this road to abandon operation over a line owned by the Central Pacific from Mina, Nev., to Tonopah Junction, 7.9 mi., and authorize the C.P. to abandon the segment. The report said the chief purpose of the line had been to provide a connection with the Tonopah & Goldfield, abandonment of which has been authorized by the commission.

EQUIPMENT AND SUPPLIES

Equipment on Order

Class I railroads and railroad-owned and controlled refrigerator car lines had 67,505 new freight cars on order April 1, compared with 111,044 on order April 1, 1948, according to the Association of American Railroads. This year's April 1 total of cars on order by all railroads and private car lines was 73,129.

The A.A.R. statement, however, featured the installations of equipment in March, pointing out that more new freight cars — 10,556 — were placed in service last month "than in any other month in more than 20 years," and that the 224 new locomotives installed in March made it the peak month of the "past 25 years" in that respect. Freight cars installed during this year's first three months totaled 27,493, compared with 22,770 placed in service during the first quarter of 1948; locomotive installations totaled 498, compared with 287.

The 67,505 cars on order April 1 by railroads and their affiliated refrigerator car lines included 28,601 to be built in railroad shops and 38,904 to be built by contract builders. The breakdown by types of cars was as follows: Box, 10,656, including 10,256 plain and ventilated and 400 auto-box; hoppers, 29,715, including 2,944 covered hoppers; gondolas, 16,639; flat, 4,325; refrigerator, 4,595; stock, 725; miscellaneous, 850.

Class I roads on April 1 also had on order 1,322 locomotives, including 1,283 Diesel-electrics, 35 steam, and 4 electrics. On April 1, 1948, there were on order 1,550 locomotives, including 1,430 Diesel-electrics, 119 steam, and 1 electric. The 498 locomotives placed in service during this year's first three months included 476 Diesel-electrics and 22 steam.

Freight cars retired during the first quarter by the Class I roads and their affiliated refrigerator car lines totaled 19,350, compared with 14,369 retired during the first three months of 1948. The March, 1949, retirements included in the former figure totaled 8,236 cars.

FREIGHT CARS

The **Wabash** has ordered 200 50-ton hopper cars from its Decatur, Ill., shops as part of its 1949 construction program.

The **Southern** is inquiring for 200 70-ton steel covered hopper cars. Bids for construction of the cars are to be submitted no later than May 13.

LOCOMOTIVES

Diesel Prices Cut 5 Per Cent

Six domestic manufacturers of Diesel-electric locomotives this week announced price reductions of approximately 5 per cent. The American Locomotive Company's reductions, which became effective at midnight, April 17, ranged from $4,000 to more than $9,000 per unit. Reductions by the Electro-Motive Division of General Motors Corporation, the Baldwin Locomotive Works and Fairbanks, Morse & Co. were effective on deliveries made on and after April 18. Baldwin reductions range from $4,400 on a 750-hp. switching unit and $5,000 on a 1,000-hp. switching unit to $10,600 on a 2,000-hp. heavy-duty transfer unit. In the case of a four-unit, 6,000-hp. freight locomotive, the reduction amounts to $31,400. The Lima-Hamilton Corporation, which makes only 1,000-hp. switching units, reduced the unit price by $5,000. The General Electric Company announced the price reduction of 5 per cent on its 44- and 70-ton standard Diesels became effective on all shipments on or after April 18.

C. R. Osborn, general manager of Electro-Motive and vice-president of General Motors, said the cut is the first general price reduction in the industry since 1939. That manufacturer's reductions range from $5,000 to $8,200 a unit. On the combination passenger and freight locomotive lead unit of 1,500 hp., the new base price is $8,200 lower. It is $7,500 less on the booster unit and $5,000 less on the 1,000-hp. switcher. The base price of a 6,000-hp. 4-unit freight locomotive will be reduced $31,400.

SIGNALING

The **Chicago, Rock Island & Pacific** has ordered from the Union Switch & Signal Co. materials for installation of an electro-pneumatic car retarder system in an expanded classification yard now under construction at Silvis, Ill. The project includes 11 Model 31 car retarders totaling 1,285 rail ft., 50 direct-acting electro-pneumatic switches, three control machines with the housings, relays, rectifiers and transformers for detector track circuits for the switches, and color-light type signals for the control of humping operations. Field installation will be done by railroad forces.

SPECIAL

The **Pennsylvania** has ordered 960 8-ton bulk containers for transporting lime, dolomite, ferro-manganese and other steel constituents. The containers will be built at the road's Altoona, Pa., shops, and gondola cars to carry them also will be reconditioned at the same location.

FINANCIAL

Boston & Maine.—*To Sell Line.*—Stockholders of this road, at their recent annual meeting in Boston, Mass., approved the sale of the section of single-track line between Rochester, N. H., and Westbrook, Me., to Samuel M. Pinsly of Yonkers, N. Y. Mr. Pinsly proposes to continue to operate the 45-mi. line, subject to Interstate Commerce Commission approval. Freight will be interchanged with the B. & M. at Rochester. The stockholders also voted to authorize affirmative action concerning the proposed acquisition, subject to approval of the I.C.C., of the properties and franchises of the Vermont Valley and the Sullivan County.

New York Central.—*New Directors.*—Stockholders of this road, at the annual meeting in Albany, N. Y., on May 25, will be asked to reelect 13 directors elected at last year's meeting and to elect two other nominees: Albert B. Dick, Jr., chairman and president of the A. B. Dick Company, and Winthrop W. Aldrich, chairman of the Chase National Bank. Mr. Dick was elected a director on February 9 by the Central's board, but has not been voted on by the stockholders. Mr. Aldrich, who has not previously been a member of the board, would succeed Sidney C. Murray, who remains the road's general counsel at Chicago. The meeting notice said Mr. Aldrich "has been chosen as a nominee. . . at the request of [the Chase National Bank] which, in accordance with requirements of the Interstate Commerce Commission, holds as independent voting trustee 400,000 shares of capital stock of the company beneficially owned by the Chesapeake & Ohio."

Southern Pacific.—*Operating Agreement.*—The Interstate Commerce Commission has granted this road's subsidiary,

ANNUAL REPORTS

Railroad		Operating Revenues	Operating Expenses	Fixed Charges	Net Income	Current Assets*	Current Liabilities*	Long Term Debt*
Ann Arbor	1948	$8,914,588	$6,877,826	$237,499	$716,275	$4,601,915	$1,554,703	$5,724,151
	1947	7,692,424	6,130,495	245,003	412,391	3,841,770	1,399,172	6,053,144
Canadian Pacific	1948	355,249,702	336,830,536	15,693,225	27,393,851	145,511,052	47,795,364	102,037,000
	1947	318,585,919	295,693,730	15,584,425	31,893,942	143,734,056	46,837,985	75,301,000
Chicago Great Western	1948	35,689,758	26,293,508	701,581	2,882,080	8,128,526	7,395,058	17,777,309
	1947	31,325,023	24,613,702	727,934	1,581,728	12,237,810	6,857,993	22,680,300
Chicago & Eastern Illinois	1948	32,625,027	26,716,935	664,993	779,407	10,592,983	7,172,757	29,596,060
	1947	28,508,455	24,293,750	653,332	844,803	10,901,887	6,597,647	27,866,589
Chicago & North Western	1948	195,019,864	165,487,170	2,410,116	7,905,480	61,145,973	41,724,544	175,943,535
	1947	176,281,195	147,815,979	2,368,557	6,109,734	60,569,540	38,891,134	173,008,409
Delaware & Hudson	1948	60,179,755	46,514,339	1,798,385	5,136,801	19,142,153	10,250,510	85,734,829
	1947	53,088,735	41,003,246	1,810,483	4,546,004	15,899,359	9,007,125	86,816,556
Denver & Rio Grande Western	1948	68,501,024	48,413,765	2,116,723	7,011,859	38,050,662	23,439,931	86,754,982
	1947	58,743,852	43,960,565	2,516,830	4,105,740	43,793,103	23,780,457	84,522,651
Duluth, Missabe & Iron Range	1948	46,602,055	26,953,228	415,850	9,782,464	20,299,183	15,707,349	18,110,000
	1947	39,402,970	22,109,206	436,821	8,543,951	21,488,077	13,591,086	19,720,000
Elgin, Joliet & Eastern	1948	46,307,238	28,358,287	615,425	7,502,569	18,552,895	17,406,585	19,070,000
	1947	38,832,747	25,259,988	642,593	4,781,482	23,961,451	15,987,361	20,177,000
Great Northern	1948	216,342,083	162,162,548	7,520,272	27,567,388	90,614,972	48,533,962	248,352,115
	1947	195,751,851	143,488,995	7,695,505	22,498,700	93,923,186	55,121,783	235,560,821
Illinois Central	1948	268,174,956	202,034,565	10,343,673	20,949,219	122,734,763	74,920,842	233,986,670
	1947	242,154,670	184,150,070	10,749,403	15,039,441	108,759,149	69,430,392	229,595,970
Lehigh & New England	1948	9,012,856	5,544,277	150,436	1,890,494	3,187,924	2,631,279	6,503,664
	1947	7,552,195	4,797,729	141,553	1,439,065	3,052,380	2,367,026	5,121,000
Kansas City Southern	1948	41,552,707	22,168,156	2,274,727	8,745,061	19,681,379	16,307,403	64,677,680
	1947	35,168,170	20,614,669	2,272,414	5,809,314	17,114,215	14,952,798	52,034,805
Long Island	1948	52,671,314	47,528,555	.....	6,016,680d	10,415,943	13,654,558	39,936,000
	1947	47,783,140	40,608,832	.....	3,996,173d	12,346,549	12,120,908	39,936,000
Louisiana & Arkansas	1948	20,542,282	12,031,293	524,515	3,166,470	12,483,465	5,756,917	21,380,109
	1947	16,286,949	9,880,644	609,774	1,999,642	11,032,552	4,522,736	15,435,813
Maine Central	1948	26,761,589	21,060,573	1,253,104	1,378,200	7,790,984	5,245,691	26,942,075
	1947	23,460,988	18,378,282	1,252,028	1,054,882	6,667,079	5,108,573	26,322,918
Minneapolis & St. Louis	1948	20,286,684	15,382,025	.....	2,216,636†	5,355,729	4,100,592	6,957,110
	1947	18,377,538	13,605,943	.....	1,949,324	5,740,116	4,306,320	4,937,956
New York Central#	1948	779,860,755	667,342,966	42,573,259	14,727,096	188,193,906	125,587,362	589,947,760
	1947	703,340,527	606,536,857	41,518,932	2,306,082	214,225,933	130,204,245	565,604,040
Norfolk & Western	1948	185,539,356	125,203,552	1,902,766	38,877,032	90,190,533	44,743,593	44,585,031
	1947	165,861,514	109,373,838	2,038,419	35,331,896	92,590,581	46,110,352	48,016,631
Pittsburgh & West Virginia	1948	8,800,480	5,830,444	452,652	1,476,535	3,862,284	2,319,072	11,255,397
	1947	6,835,706	5,202,771	459,301	1,118,912	2,896,067	1,170,795	10,469,700
Rutland	1948	6,288,661	5,482,420	401,769	362,591d	1,914,384	763,197	9,216,000
	1947	5,838,019	5,463,457	401,171	869,073d	1,783,919	932,599	9,216,000
St. Louis Southwestern	1948	64,271,868	38,889,787	1,875,374	10,363,069	29,968,099	16,384,783	48,675,995
	1947	54,642,987	33,316,140	2,560,653	7,223,739	23,883,582	12,910,471	62,653,891
Savannah & Atlanta	1948	3,196,903	2,109,021	61,654	411,634	1,766,131	1,053,204	1,542,500
	1947	2,638,198	1,863,960	51,362	266,746	1,946,421	874,138	930,000
Texas & Pacific	1948	77,990,776	57,934,325	2,843,997	7,021,133	28,604,514	13,371,118	65,026,387
	1947	64,704,828	48,742,473	3,134,446	5,460,080	27,837,135	11,241,086	64,528,245
Virginian	1948	38,097,608	23,623,958	1,896,499	6,968,497	22,001,261	11,764,752	70,734,726
	1947	36,551,799	21,894,573	1,799,724	7,146,554	18,417,797	11,441,246	59,632,755

* On December 31.
d Deficit.
† Does not include aggregate net income of subsidiaries in which this road holds a majority of the outstanding capital stock.
# 1947 figures restated for purposes of comparison.

the San Diego & Arizona Eastern, authority to modify an agreement under which it will continue to use certain facilities of the Atchison, Topeka & Santa Fe in San Diego, Cal., including the passenger station in that city. The modified agreement calls for rental payments of $3,000 a month from March 1, 1945, to August 31, 1946, $2,500 a month from September 1, to December 31, 1946, and $2,000 a month beginning January 1, 1947.

New Securities

Applications have been filed with the Interstate Commerce Commission by:

Chicago & North Western.—To assume liability for $6,210,000 of equipment trust certificates to finance in part the acquisition, from the Baldwin Locomotive Works, of five 1,500-hp. Diesel-electric road switching locomotives at a unit cost of $177,475; and, from the Pullman-Standard Car Manufacturing Company, of 1,000 50-ton box cars at a unit cost of $5,027 and 250 automobile cars with autoloading devices at a unit cost of $7,484. The total estimated cost of the equipment is $7,785,375. The certificates would be dated June 1, and would be sold on competive bids, which would determine the interest rate and whether the issue would mature over a 10- or 15-year period.

Indiana Harbor Belt.—To assume liability for $2,050,000 of equipment trust certificates to finance in part the following equipment:

	Description and builder	Estimated Unit Cost
2	1,000-hp. Diesel-electric switching locomotives (Fairbanks, Morse & Co.)	$106,024
1	1,000-hp. Diesel-electric switching locomotive (Fairbanks, Morse)	105,485
16	1,000-hp. Diesel-electric switching locomotives (General Motors Corporation, Electro-Motive Division)	108,505
2	2,000-hp. Diesel-electric transfer locomotives (Fairbanks, Morse)	187,498
25	70-ton covered steel hopper cars (Pullman-Standard Car Manufacturing Company)	7,000

Total estimated cost of all equipment is $2,603,609. The certificates would be guaranteed by the I.H.B.'s proprietary companies—the New York Central, the Michigan Central, the Chicago & North Western, and the Chicago, Milwaukee, St. Paul & Pacific, each of which filed an application for authority to assume liability on that basis. The certificates would be dated May 1, and would mature in 10 annual installments of $205,000 each, beginning May 1, 1950. They would be sold on the basis of competitive bids with the interest rate fixed by such bids.

Division 4 of the I.C.C. has **authorized**:

Missouri Pacific.—To assume liability for $4,320,000 of series LL equipment trust certificates to finance in part 1,000 70-ton steel hopper cars and three 1,000-hp. Diesel-electric locomotives at at estimated cost of $5,412,588 (see *Railway Age* of March 26, page 114). The certificates will be dated April 15 and will mature in 14 annual installments of $288,000 each, beginning April 15, 1950. The commission's report approved a selling price of 99.511 with a 2½ per cent interest rate—the bid of Salomon Brothers & Hutzler and three associates, which will make the average annual interest cost approximately 2.59 per cent. The certificates were reoffered to the public at prices yielding from 1.45 to 2.75 per cent according to maturity.

Pennsylvania.—To assume liability for $9,990,000 of series W equipment trust certificates, the second and final installment of a $19,995,000 issue, the proceeds of which are being applied toward the purchase of equipment estimated to cost $25,002,000 (see *Railway Age* of February 5, page 118). The certificates will be dated November 1, 1948, and will mature in 15 annual installments of $666,000 each, beginning November 1, 1949. The commission's report approved a selling price of 99.67 for the issue with a 2½ per cent interest rate—the bid of Halsey, Stuart & Co., Inc., and 16 associates, which will make the average annual interest cost approximately 2.57 per cent.

Dividends Declared

Little Miami.—original capital, $1.10, payable June 10, September 10, December 10 and March 10, 1950, to holders of record May 24, August 23, November 24 and February 21, 1950; special guaranteed, 50¢, quarterly, payable June 10, September 10, December 10 and March 10, 1950, to holders of record May 24, August 23, November 24 and February 21, 1950.

Piedmont & Northern.—75¢, payable April 20 to holders of record April 5.

Average Prices Stocks and Bonds

	Apr. 19	Last week	Last year
Average price of 20 representative railway stocks	39.50	40.23	51.41
Average price of 20 representative railway bonds	87.25	87.68	88.43

CONSTRUCTION

Construction Begun on A.A.R.'s New Chicago Research Laboratory

Construction was started this week on the new Association of American Railroads' research laboratory on the campus of the Illinois Institute of Technology, at Chicago, following award of the contract to Federal Constructors, Inc., Chicago. Completion of the building, which will serve as headquarters for the research and testing staffs of the Mechanical and Engineering Divisions and the Container Bureau of the A.A.R., is scheduled for the middle of November.

It will be located near the northwest corner of the projected 110-acre Illinois Tech campus development. It will run north and south along Federal street between 31st and 32nd streets. An impact test track will be built along the New York Central tracks west of the building. Dimensions of the structure will be 218 ft. by 50 ft., with two stories and a full basement. Total cost, including utility lines, landscaping, tracks, and equipment, will be $600,000.

The new building and its anticipated uses were fully described in the *Railway Age* of October 9, 1948, page 58.

Central of New Jersey.—This road has awarded a contract to J. Rich Steers, Inc., New York, for removal of a portion of the substructure of bridge No. 177 over the Hackensack river between Jersey City, N. J., and Kearny, at an estimated cost of $139,000.

Missouri Pacific.—Plans are being prepared for a joint $413,200 project of this road and the federal government which will involve the raising, by 5½ feet, of bridge No. 2 over the Arkansas river between Fort Smith, Ark., and West Fort Smith, Okla. The work is in connection with the government's flood control program.

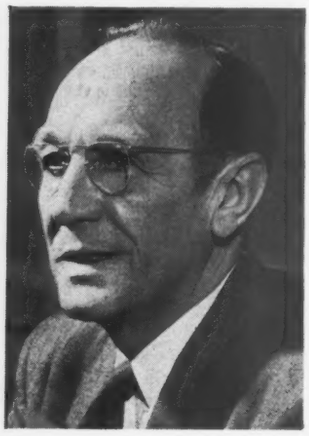
Southern Pacific.—Company forces of this road, during 1949, will renew some 400 mi. of rails, at an estimated cost of $14,475,000. Most of the rail—to be furnished by the Colorado Fuel & Iron Co.—will be of 113-lb. section, with 132-lb. for curves. The road's signal respacing program to conform to Interstate Commerce Commission rules and regulations will be continued at an expenditure of approximately $970,100. The S. P. during this year will spend about $172,000 to enlarge and retimber an additional 500 ft. of tunnel No. 6 at Cuesta-Thyle, Cal., and install 500 ft. of concrete sills and 300 ft. of exhaust heading. Work on this project is expected to begin in May. Facilities at the road's Taylor (Cal.) yard will be supplemented by a 24-ft. by 42-ft. steel frame corrugated iron building and 2,580 ft. of wheel storage tracks. The structure will house a coach wheel lathe costing, with foundation and electric service, approximately $66,645. Total cost of the Taylor project will be $79,433. Nearing completion is yard work at Aurant-Alhambra, Cal., involving construction of 24,830 ft. of track, 10 switches and a 150-ton track scale. The new facilities will alleviate congested conditions at Taylor yard, and will cost some $173,810. Two projects were completed by company forces in March: Extend siding 2,928 ft. to the east and install spring switches at each end, at Fenner, Ariz. ($39,260); and construct elevated platform between two tracks in Diesel shop at West Oakland, Cal., to facilitate servicing and repairing of Diesel locomotives, the platform being of concrete and steel construction 8 ft. 9 in. wide by 215 ft. long ($27,440).

RAILWAY OFFICERS

EXECUTIVE

E. W. Reich, whose appointment as assistant to president of the Reading at Philadelphia, Pa., was reported in the *Railway Age* of April 9, was born at Frackville, Pa., on September 11, 1894, and entered railroad service with the Reading on May 1, 1910, as laborer on a signal construction gang. Mr. Reich served successively as batteryman, maintainer and leading maintainer in division maintenance organization until February 1, 1930, when he was employed in the engineering office. He was appointed superintendent telegraph and signals on De-

cember 15, 1944, which position he held until his recent appointment. Mr. Reich served with the 414th Telegraph Battalion, American Expeditionary Forces,



E. W. Reich

from November 30, 1917, to July 9, 1919, and conducted the Reading division signal school from 1927 to 1928.

G. M. Watson, whose promotion to assistant to vice-president—traffic of the Union Pacific at Omaha, Neb., was reported in the *Railway Age* of April 2, was born on May 21, 1902, at Colorado Springs, Colo. Mr. Watson entered U. P.

G. M. Watson

service in 1917 as a messenger in the general freight office at Omaha, and subsequently served in several clerical positions. In May, 1944, he became chief rate clerk in the freight traffic department at Omaha, which post he held at the time of his recent promotion.

James J. Frawley, general manager of the New York Central Lines East, with headquarters at Syracuse, N. Y., has been appointed assistant vice-president of the system, with headquarters at New York, effective May 1. Mr. Frawley was born in 1888 at Buffalo, N. Y., and entered the service of the N. Y. C. as a telegraph messenger in 1902 at Buffalo, becoming an operator in 1906 and train dispatcher in 1914. He was transferred to Erie, Pa., in 1918 as trainmaster, becoming assistant superintendent there in 1937 and superintendent in 1940. Mr. Frawley was then appointed assistant to general manager at Cleveland, Ohio, in 1943, and assistant general manager in 1945, transferring

James J. Frawley

to Syracuse in 1947, and becoming general manager there on December 1 of that year.

FINANCIAL, LEGAL & ACCOUNTING

C. L. Taylor, general auditor of the Piedmont & Northern, has been elected treasurer and general auditor, with headquarters as before at Charlotte, N. C.

William F. Hanlon, assistant general solicitor of the Jersey Central Lines, has been appointed general attorney, with headquarters as before at New York. **John J. McElhinney,** attorney, has been appointed general attorney. **Richard J. Lally** and **Earl J. Harrington,** attorneys, have been appointed assistant general solicitors.

J. J. Gavin, auditor of ticket accounts for the Pullman Company at Chicago, has also been appointed auditor of receipts at that point, succeeding **J. W. Whowell.** Mr. Whowell and **Herman P. Sellick,** assistant auditor of receipts, have retired because of ill health.

Chester E. Oliphant, chief statistician of the Chicago, Milwaukee, St. Paul & Pacific at Chicago, will retire on April 30, after 29 years of service with the road.

OPERATING

J. P. Jackson, general superintendent of the Eastern general division of the Norfolk & Western at Roanoke, Va., has been transferred to the Western general division at Bluefield, W. Va., succeeding the late **O. M. Dawson,** whose death was reported in the *Railway Age* of April 16. **C. P. Blair,** superintendent of transportation, has been appointed general superintendent of the Eastern general division, with headquarters as before at Roanoke, succeeding Mr. Jackson. **W. T. Ross,** assistant superintendent of transportation, has been promoted to superintendent of transportation, succeeding Mr. Blair, also with headquarters as before at Roanoke.

Mr. Blair was graduated from Virginia Polytechnic Institute and began his service with the N. & W. as a special ap-

C. P. Blair

prentice in the Roanoke shops in July, 1923. He was a shop inspector on the Scioto and Pocahontas divisions, then did special work for the motive power valuation department, and later was automatic train control mechanic and shop engineer. He was promoted to assistant road foreman of engines on the Radford division in 1936, and was transferred to the Norfolk division a year later. Mr.

W. T. Ross

Blair was moved up successively to assistant trainmaster of the Shenandoah division in 1938; trainmaster of the Pocahontas division in 1941; assistant superintendent of the Scioto division the same year; and superintendent of that division in 1942. He was promoted to superintendent of transportation on September 1, 1944.

Mr. Ross worked summers in the Roanoke shops of the N. & W. while still

News Department continued on next left-hand page .

What price fuel?

What the future holds in the way of fuel prices—and availability—we must leave to those with crystal balls. But today's prices—and availability—we know.

In this connection, a pertinent point has perhaps not received the attention it should. Better coal—and particularly sized coal—is now generally available. At a price, of course. But the price is low compared to the better performance it produces. A number of roads have found that they can obtain 6 to 20 per cent, and even 30 per cent, improvement in boiler efficiency with double-screened coal. With this better efficiency they are not only saving fuel, but they are getting higher capacity, lower maintenance and increased reliability and availability.

A modern steam locomotive, burning *good* coal, can turn in a performance that compares well with any motive power the railroads have yet seen. But more important—modern or old, coal burning locomotives are doing 60 per cent of all the work on railroads. Every one of these will perform better—and help reduce costs—when fired with better coal.

LIMA HAMILTON CORPORATION

DIVISIONS: *Lima, Ohio*—Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio*—Hooven, Owens, Rentschler Co.; Niles Tool Works Co. *Middletown, Ohio* — The United Welding Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

in school, starting on June 3, 1927. He re-entered service in the shops in December, 1936, as a shop hand, after graduation from the University of Virginia School of Engineering, later serving as shop inspector and assistant engineer of tests. He was promoted to assistant road foreman of engines on the Radford division on January 1, 1941, serving in that capacity on the Scioto and Pocohontas divisions until he was promoted to assistant trainmaster at Iaeger, W. Va., in April, 1943. Mr. Ross was advanced to assistant supervisor of transportation at Roanoke in 1945, and to assistant superintendent of transportation last November.

Ralph Johnson, whose promotion to superintendent of the International-Great Northern (part of the Missouri Pacific Lines) at Palestine, Tex., was reported in the *Railway Age* of March 26, was born on December 4,, 1898, at Vermillion, Kan. He entered M. P. service in January, 1916, as a crew caller on the Northern Kansas division and later became telegrapher-agent on that division. In 1918, he was transferred to the Southern Kansas division, and subsequently held such positions as telegrapher and extra dispatcher, dispatcher and division trainmaster, and assistant trainmaster. He was advanced to division trainmaster on the I.-G. N. at Palestine in 1928, and became trainmaster at San Antonio, Tex., in 1930. From 1932 to 1940, he served al-

Ralph Johnson

ternately on the Kingsville division of the Gulf Coast Lines (also M.P.) as assistant trainmaster and on the Palestine division of the I.-G. N. at Palestine in 1928, and came trainmaster at San Antonio, Tex., I-G. N. as division trainmaster. He subsequently held the position of trainmaster on the Freeport Valley (also M. P.) Houston & Brazos Valley (also M. P.) until 1941, when he was transferred to Palestine. He was advanced to assistant superintendent of the Coast Lines at DeQuincy, La., in April, 1944, and became superintendent on the Palestine and San Antonio divisions in December, 1947. Mr. Johnson returned to DeQuincy as assistant superintendent in April, 1948, which post he held at the time of his recent promotion.

The Chicago, Rock Island & Pacific has announced the following changes in its operating department: **O. W. Limestall,** assistant general manager at Des Moines, Iowa, promoted to general superintendent of transportation at Chicago, to succeed **K. K. Stokes,** who has been granted an extended leave of absence; **R. H. Spicer,** superintendent of the Missouri-Kansas division at Kansas City, Mo., transferred to the Oklahoma division, with headquarters at El Reno, Okla., succeeding **R. B. Smith,** who has been advanced to replace Mr. Limestall; **A. B. Harrison,** trainmaster at Pratt, Kan., promoted to superintendent of the Panhandle division, with headquarters at Liberal, Kan., succeeding **G. J. Mulick,** who replaces Mr. Spicer at Kansas City.

Francis E. Harrison, superintendent, Twin Cities terminal, of the Chicago, St. Paul, Minneapolis & Omaha, at Minneapolis, Minn., has been appointed general superintendent at St. Paul, Minn., succeeding **Harry P. Congdon,** whose appointment as vice-president and general manager of the Minnesota Transfer and the St. Paul Union Depot, at St. Paul, was reported in the *Railway Age* of April 2.

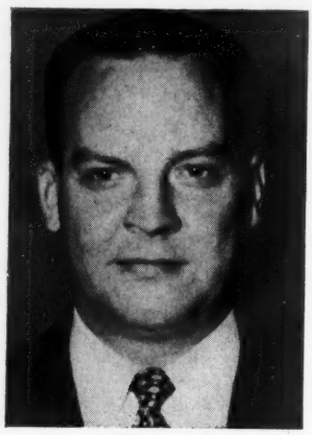
Augustus Hart, who has been general manager of the Boston & Albany with headquarters at Boston, Mass., since March 1, has been appointed general manager of the New York Central Lines East, with headquarters at Syracuse, N. Y., succeeding **James J. Frawley,** who has been appointed assistant vice-president of the system at New York. **Richard G. May,** superintendent of the Mohawk and Hudson division of the N.Y.C. at Albany, N. Y., succeeds Mr. Hart as general manager of the B. & A. at Boston, and has been succeeded by **Harry B. Johnston,** assistant division superintendent at Buffalo. **L. E. Pangburn,** assistant to general manager, Lines East, at Syracuse, has been appointed assistant division superintendent at Buffalo, succeeding Mr. Johnston. Photographs and biographies of Messrs. Hart and May were published in the *Railway Age* of November 20, 1948, page 1004.

James A. Jakubec, assistant superintendent of terminals of the Chicago, Milwaukee, St. Paul & Pacific at Bensenville, Ill., has been promoted to superintendent of the Hastings and Dakota division, with headquarters at Aberdeen, S. D., succeeding the late **Arthur T. Berg,** whose death was reported in the *Railway Age* of April 9.

J. F. Lee, assistant superintendent of the St. Louis, San Francisco & Texas (part of the St. Louis-San Francisco) at Sherman, Tex., has been appointed also assistant superintendent, Sherman and Fort Worth subdivisions, of the Frisco at that point. **J. Dalton,** assistant superintendent at Ada, Okla., has been transferred to Enid, Okla. **W. F. Mitchell** has been appointed terminal trainmaster at St. Louis, Mo., succeeding **Ben Casselman,** who has been transferred to Springfield, Mo. **R. E. Beatty** has been appointed terminal trainmaster at Tulsa, Okla.

TRAFFIC

Carl H. Gray, whose appointment as freight traffic manager—sales and service of the St. Louis-San Francisco at St. Louis, Mo., was reported in the *Railway Age* of March 26, entered railroad service with the Frisco in 1928, as a chief clerk at Cleveland, Ohio. Two years later he was promoted to soliciting freight and passenger agent, and in 1932 he was appointed traveling freight and



Carl H. Gray

passenger agent, with headquarters at Cleveland. He served as assistant general agent at Detroit, Mich., from 1935 to 1937, when he was advanced to general agent at Pittsburgh, Pa. Mr. Gray became traffic manager at Birmingham, Ala., in 1942, and was transferred to Tulsa, Okla., as traffic manager in December, 1946. He held the latter post at the time of his recent appointment.

James P. Donahue, assistant general passenger agent of the Illinois Terminal at Springfield, Ill., has been promoted to general passenger agent at that point, and his former position abolished.

B. H. Lewis, assistant general freight agent of the Wabash at Detroit, Mich., has been promoted to assistant freight traffic manager at that point, succeeding the late **D. E. Gilbert. Robert F. Stapleton,** division freight agent at Springfield, Ill., has replaced Mr. Lewis, and has been succeeded by **J. F. Crinigan,** traveling freight agent, with headquarters at Decatur, Ill. **Val O. Guyton** has been appointed division freight agent at Detroit.

The St. Louis Southwestern has announced the following appointments in its traffic department: **W. E. Thompson,** assistant general freight and passenger agent, as general freight agent at Little

News Department continued on next left-hand page

A low-cost locomotive modernizing treatment that pays BIG DIVIDENDS

Box type steel piston cut away to show construction. Note flame-hardening (indicated by darker area) to increase wear at vital points.

HUNT-SPILLER *Light-weight* box type pistons and Duplex *Lip-Type* cylinder packing defeat obsolescence

MAINTENANCE costs decrease sharply; availability goes up with an installation like this. Packing rings wear longer with lighter weight pistons; so do cylinder bushings. The savings you will make may be just the margin needed to make that old locomotive profitable to operate. Moreover, you can install these pistons without changing front or back cylinder heads!

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LIGHT WEIGHT STEEL PISTONS AND VALVES DUPLEX SECTIONAL PACKING AIR FURNACE GUN IRON

Rock, Ark.; **W. C. Huxhold,** general agent, as assistant traffic manager at Chicago; and **Jack Rector,** Pacific Coast agent, as assistant traffic manager at Los Angeles, Cal. The positions formerly held by these men have been abolished.

P. A. Jenkins, division passenger agent of the Southern at Birmingham, Ala., has been transferred to Augusta, Ga., succeeding **Robert S. Brown,** who has retired from active duty at his own request, after 50 years of service with this system. **G. B. Bingham** has been appointed district passenger agent at Birmingham, succeeding **R. W. Plemmons,** who has been appointed division passenger agent, succeeding Mr. Jenkins.

R. J. MacCarthy, flour, grain and coal agent of the Chicago & North Western at Minneapolis, Minn., has been promoted to general agent at Eau Claire, Wis., and has been succeeded by **Guy K. Rossman,** city freight agent at St. Paul, Minn.

MECHANICAL

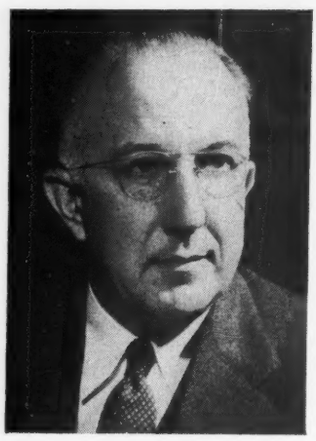
D. S. Neuhart, whose promotion to general superintendent of motive power and machinery for the Union Pacific at Omaha, Neb., was reported in the *Railway Age* of April 9, was born on September 19, 1901, at Salt Lake City, Utah, where he entered railroad service in June, 1918, as a coach cleaner. During off hours he took courses in engineering and also studied mechanical engineering at the University of Utah for 1½ years. He became shop inspector at Omaha in 1935. The same year he was appointed general foreman at Cheyenne, Wyo., and in 1937 was promoted to assistant master mechanic there, being transferred

D. S. Neuhart

later that year to Los Angeles, Cal., as superintendent of shops. From 1941 to 1942, he served as master mechanic at Kansas City, Mo., and as assistant to vice-president of research and mechanical standards at Omaha. He was subsequently appointed master mechanic at Los Angeles, and later in 1942 became superintendent of motive power and machinery, Eastern district, at Omaha. Mr. Neuhart was advanced to assistant general superintendent of motive power and machinery at Omaha in February, 1945, which post he held at the time of his recent promotion.

ENGINEERING & SIGNALING

Wayne L. Scott, whose appointment as superintendent telegraph and signals of the Reading at Philadelphia, Pa., was reported in the *Railway Age* of April 9, was born on October 25, 1898, and entered railroad service on June 1, 1916, as extra signal repairman on the Reading division of the Reading. Mr. Scott resigned on August 31, 1918, but re-entered the service of the Reading as signal maintainer on June 16, 1921, again resigning three months later. On September 11, 1922, Mr. Scott became clerk



Wayne L. Scott

in the Reading freight station; on February 23, 1923, signalman on the Reading division; and on February 11, 1924, electric signal inspector at Reading. He was appointed supervisor of signals on the Harrisburg division on March 23, 1925, transferring to the New York division on August 22, 1932. Mr. Scott became signal inspector at Reading terminal, Philadelphia, on October 4, 1935, in which capacity he served until his recent promotion to superintendent telegraph and signals.

SPECIAL

Chris Hobson, editor of the Texas & Pacific employee magazine, Topics, has been promoted to assistant director of public and employee relations at Dallas, Tex. **William T. Lynde,** special representative, has been advanced to public relations representative. **Jack Maguire,** formerly editor of the Missouri-Kansas-Texas employee publication at St. Louis, Mo., has joined the T. & P. as Mr. Hobson's successor, and has also been appointed employee relations representative.

Robert Edward Black, whose appointment as superintendent personnel of the Pittsburgh & Lake Erie at Pittsburgh, Pa., was reported in the *Railway Age* of April 2, was born at Fairview, Pa., on July 5, 1914, and entered the service of the P. & L. E. on September 1, 1937, as a clerk. On June 16, 1944, Mr. Black was appointed assistant to supervisor wage schedules, serving in that capacity until July 1, 1947, when he became supervisor wage schedules, which position he held until his recent appointment as superintendent personnel.

OBITUARY

Harry J. Bell, who served as regional supervisor of safety of the United States Railroad Administration and prior to that as safety inspector of the Chicago & North Western, died on April 10, after a heart attack, at his home in Milwaukee, Wis. Mr. Bell had been executive director of the Milwaukee Association of Commerce for the past 23 years.

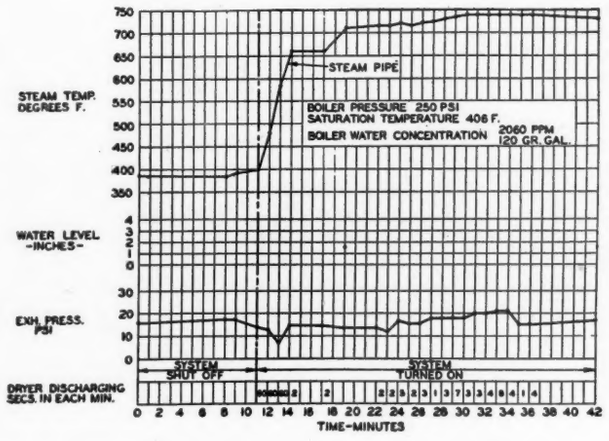
D. E. Gilbert, assistant freight traffic manager of the Wabash at Detroit, Mich., died recently.

Edward A. Clancy, comptroller of the New York Central System at New York, died in that city on April 19, after an illness of several months. Mr. Clancy was born on November 28, 1883, at Tompkins Cove, N. Y. After study at the New York School of Accounts and New York University, he became a certified public accountant. Beginning as a clerk in 1903, he had been in the service of the N. Y. C. during all his business career except for five years after 1913 when he was exam-

Edward A. Clancy

iner of accounts for the New York State Public Service Commission, and for the Bureau of Valuation, Interstate Commerce Commission, at Washington, D. C. He was appointed assistant comptroller of the N. Y. C. System in 1937 and became comptroller in 1944. Mr. Clancy was a director of the Merchants Despatch Transportation Corporation, the Northern Refrigerator Line, Inc., the Despatch Shops, Inc., and the West Shore and Walkill Valley Railroads (part of the N.Y.C.).

A Fuel Saver— the Elesco Steam Dryer System



TEST OF STEAM DRYER WITH DISCHARGE TO ATMOSPHERE

The steam consumption per i.hp-hr. obtained on a test with a modern high-speed freight locomotive, operating at 50% cutoff, showed the following results:

STEAM TEMPERATURE	STEAM PER 1. HP.-HR.	SAVINGS from the Use of Superheat
Saturated Steam	28 lb.	—
150 deg. Superheat	21 lb.	25.0%
200 " "	18 lb.	35.6%
250 " "	16 lb.	43.0%
350 " "	14 lb.	50.0%

Foaming is the major cause for carryover in locomotive boilers. Tests were made with bad foaming conditions and you will note from the chart that there was a loss of 300 deg. of superheat due to the intensity of this condition, with dryer shut off.

When the Elesco Steam Dryer System was in operation, the carryover was discharged and the steam temperature increased 300 deg.

The economy of superheat is indicated in the tabulation and it is apparent that the loss of 300 deg. of superheat increased fuel consumption by more than 25%.

With high fuel costs, take steps to stop fuel losses incident to carryover, by eliminating this condition. This can be most effectively accomplished with the **Elesco Steam Dryer System** — INVESTIGATE!

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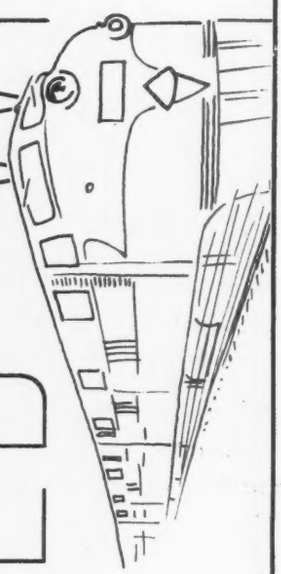

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Current Publications

TRADE PUBLICATIONS

Reynolds Extruded Aluminum Structural Shapes. Issued by the Reynolds Metals Company, 2500 S. Third st., Louisville 1, Ky. Free to those requesting it on company letterhead.

This is a portfolio of detailed drawings of the Reynolds line of aluminum architectural shapes. The drawings, black on white, are on standard 8½-in. by 11-in. sheets, not bound together but assembled loosely in a pocket in a special binder. An index sheet is included. Also included are sheets containing, in tabular form, size and weight data of aluminum rod and bar sections, and of aluminum structural sections. The company has arranged that holders of the portfolio will be supplied with all additions and revisions that may be subsequently issued.

Butler Built Steel Buildings for Railroad Uses at Low Cost. 8 pages, illustrations. Published by the Butler Manufacturing Company, Thirteenth & Eastern aves., Kansas City 3, Mo.

Describes four construction styles of Butler steel buildings designed especially to meet railway needs. These are the rigid-frame, truss-clear steel-aluminum buildings; the bow-string truss construction for steel-aluminum buildings; packaged steel buildings — small utility type; and boulevard buildings — Key-Lock steel-panel construction.

BOOKS

The State of the Company. 233 pages. Published by the Timken Roller Bearing Company, Canton, Ohio.

This, the second volume of "The State of the Company," contains 52 talks made over radio stations in Canton, Ohio, and Columbus, during a period from April, 1947, through November, 1948. Each talk covers some phase of the company's operation or a statement of company policy. All the talks were prepared for the information of Timken men and women so that they might better understand the enterprise in which they are engaged. The book is available to any Timken employee—or to others who may be seeking information about the Timken enterprise—upon written request.

Typical Designs of Timber Structures, 1949 edition. 114 pages, illustrations. Published by the Timber Engineering Company, Washington, D. C. $10. (Free to railway architects and engineers who apply for copies on company letterhead.)

Intended as a guide for engineers and architects concerned with design of light and heavy-frame timber structures, this volume includes 94 typical drawings of roof trusses, bridges, towers, wharves, trestles, houses, small buildings and other structures. While the drawings are typical, the book tells how these designs may be modified to suit any particular case.

Among the typical designs included are nine examples of trussed rafters, 34 examples of pitched roof trusses for spans up to

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80 ft., 13 examples of flat roof trusses for spans up to 80 ft., 3 examples of the Lank-Teco truss, said to be highly economical for roof spans up to 60 ft., and 11 examples of bow-string trusses for spans up to 120 ft.

In addition, the book contains a number of miscellaneous designs. Of interest to railway men are those of highway bridges for 18-ft. roadways and spans up to 70 ft., a footbridge of 50-ft. span, a trestle designed for E-45 or E-60 loading, and typical wharf and revetment details.

Transportation in 1948, edited by Lewis W. Britton. 224 pages. Published by the Traffic Service Corporation, 815 Washington bldg., Washington 5, D. C. $4.

A review of important developments in the field of transportation as reported in 1948 by the editorial staff of Traffic World. It includes legislative action; reviews of proceedings decided by the Interstate Commerce Commission, the Civil Aeronautics Board and the United States Maritime Commission, and court decisions, together with significant statements on transportation matters by those who, because of their position in government or in the industry, speak with authority. While it makes no claim to be a comprehensive legal review, it is helpful in the sense that, wherever a regulatory agency has either pushed on to new ground in interpretation of law, or has seen fit to restate with emphasis the principles on which it has acted in the past in order that these principles may be highlighted against present-day conditions, such action will be found here. In addition to formal action by the regulatory agencies, and by Congress, there are developing viewpoints with reference to transportation that are here set down, either to show the present status of such matters as the St. Lawrence Seaway or to set forth the results of action such as that of the Supreme Court of the United States in ordering the basing-point system eliminated in the sale of cement.

PAMPHLETS

A National Oil Policy for the United States. A Report of the National Petroleum Council, 1949. 28 pages. Available from the National Petroleum Council, 1625 K st., N.W., Washington 6, D. C. Free.

Formulated by the National Petroleum Council at the request of the Secretary of the Interior, this report supplements one issued in 1945 under the title of "A Petroleum Policy for the United States." It outlines the aims and fundamental principles of a national oil policy and then discusses five elements—domestic oil, natural gas, foreign oil, imports and national security—that must be considered in the formulation of that policy.

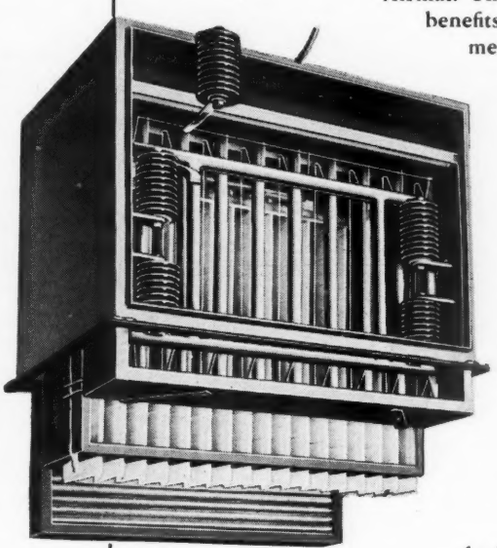
Locomotive Photos, 1829-1949. 44 pages. Published by C. and L. Photo Service, Musgrove building, Andover, Mass. Free.

A catalog of steam locomotive photographs with particular emphasis on New England railroads; 5 by 7 prints are available at 25 cents each, and 8 by 10 prints, at 50 cents each. Among the principal sets of pictures available is one showing construction of parts—the 5 by 7 set costing $10 and the 8 by 10 set, $20.

CHECK THE AIR ✓ for passenger comfort

THERE'S a good reason for passenger preference of certain trains. And that preference is usually based on comfort, to which clean air makes an important contribution. So, for profit reasons, it's wise to check the air in passenger cars to see if it measures up to modern comfort standards.

And it's equally good business to base this check-up on the advantages of the AAF Electro-Airmat. This modern filter combines the benefits of electronic precipitation and mechanical filtration in a single unit—uses AAF's exclusive Airmat* paper for positive removal of dust, lint and tobacco smoke from the air. It is designed and built especially for railroad passenger car service and incorporates the following features—



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• Cleaning effectiveness 10 times greater than ordinary mechanical filters. • Average cleaning efficiency 90% in removal of dust, dirt, lint and smoke based upon The Bureau of Standards Discoloration Tests. • Simple to maintain—no cleaning, re-oiling and handling of collector plates. Airmat paper is disposable and quickly installed for new filter performance. • In case of power failure, Electro-Airmat functions as an effective dry-type filter. • Less weight—space required in direction of airflow is ⅓ less than the usual plate-type unit.

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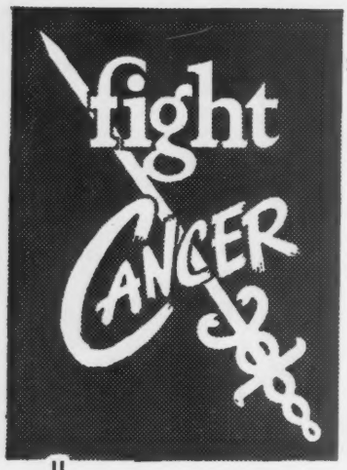

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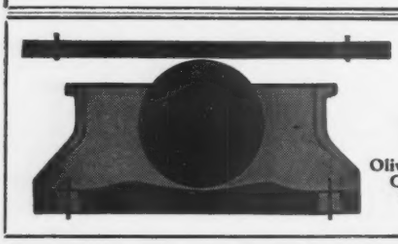

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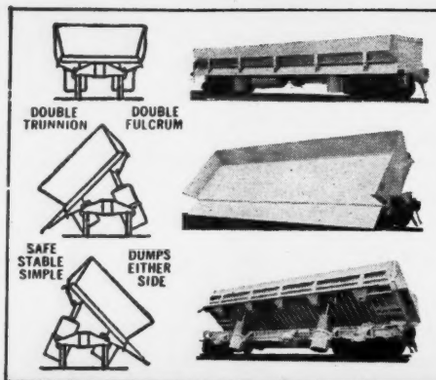

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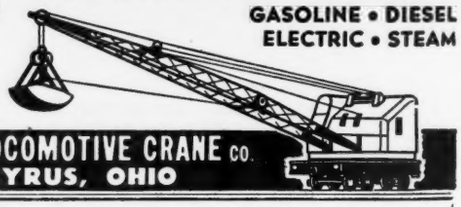

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